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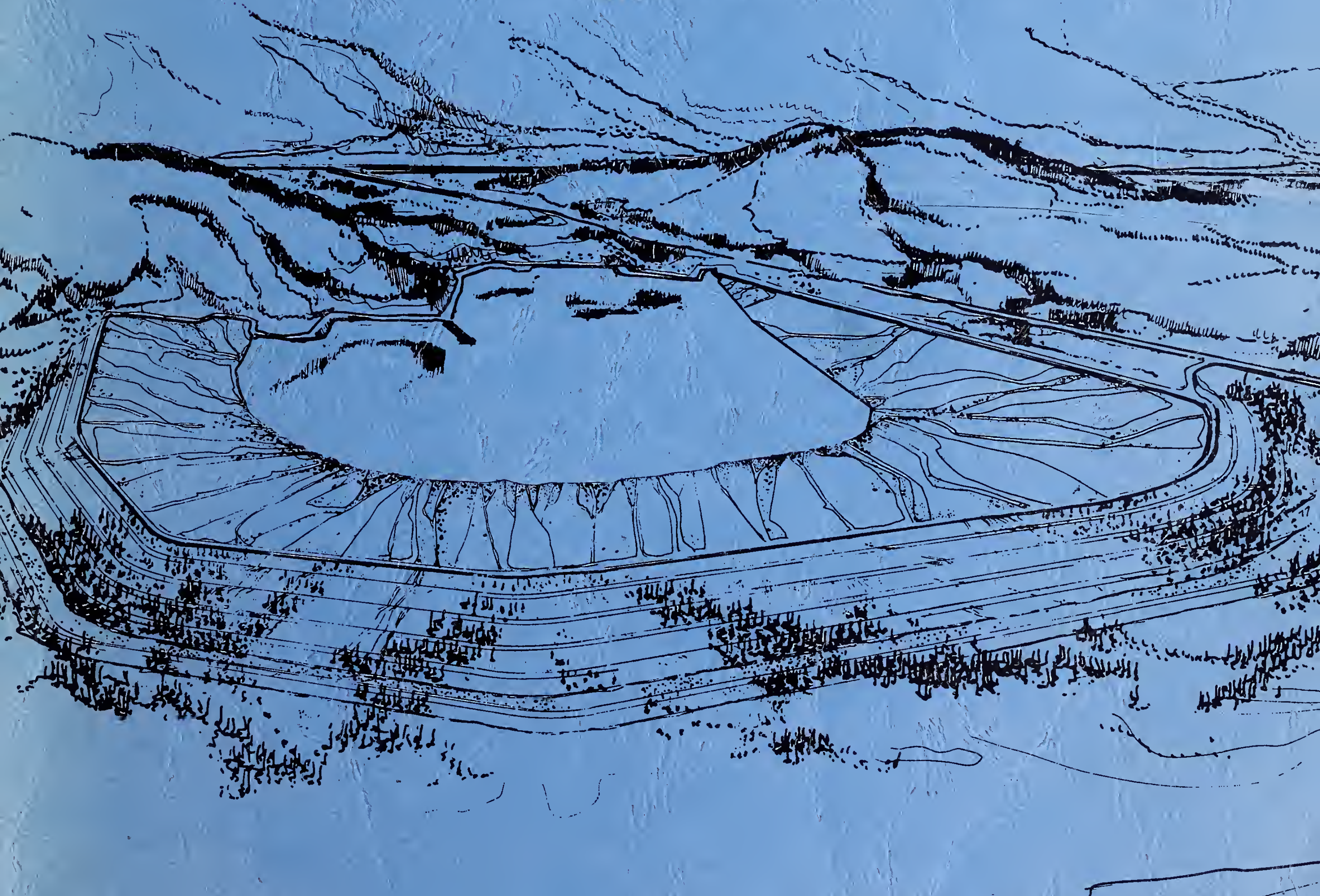
TROY PROJECT
ASARCO INC.
LINCOLN COUNTY, MONTANA

Volume III



UNITED STATES FOREST SERVICE
KOOTENAI NATIONAL FOREST

STATE OF MONTANA
DEPARTMENT OF STATE LANDS

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MONTANA DEPARTMENT OF STATE LANDS

FINAL
ENVIRONMENTAL IMPACT STATEMENT
PROPOSED PLAN OF MINING AND RECLAMATION
TROY PROJECT - ASARCO
LINCOLN COUNTY, MONTANA

Prepared by

Montana Department of State Lands

U.S. Forest Service, Kootenai National Forest

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Commissioner
Montana Department of State Lands

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Forest Supervisor
Kootenai National Forest

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INTRODUCTION

In November, 1976 the Montana Department of State Lands and the Kootenai National Forest began a joint analysis of broad cumulative environmental impacts of a proposed new copper and silver resource development by ASARCO Inc., in an area adjacent to Bull Lake in Lincoln County, Montana. The joint draft environmental impact statement was released to the public for comment and review on June 26, 1978, and considered the primary, secondary, and cumulative impacts of the ASARCO Inc. proposal. Forty-five days were provided for public and agency comment on the draft EIS, including three public meetings held on July 24, 25, and 26, 1978 in Troy, Noxon, and Libby, Montana respectively.

A review and consideration by the participating agencies of the comments received and additional data available since the issuance of the draft EIS has not altered significantly the results and conclusions reached regarding the significance and magnitude of the potential impacts identified in the draft EIS. Because of this, and the additional cost and time necessary to reprint Volumes I and II of the draft EIS for issuance as a final EIS, the participating agencies have chosen to produce a single additional Volume III-Final EIS to be included as part of the draft EIS volume set, for the purpose of finalizing the results and conclusions contained in Volumes I and II of the draft EIS. In addition, Volume III contains (1) an update of recent events regarding the proposed mining and operating plan, (2) additional environmental baseline data not available for inclusion in the draft EIS, (3) a summary of the major conclusions and supporting information based on the draft EIS, (4) responses to substantive comments or objections received on the draft EIS, (5) summary of these measures that would provide the greatest protection to the area's resources, and (6) a Record of Decision by the Supervisor, Kootenai National Forest.

Thirty days following issuance of Volume III, ASARCO Troy Project Final EIS, the Montana Department of State Lands will take action on the ASARCO Inc. application for an operating permit. If the operating permit is granted, ASARCO Inc. may begin to develop the proposed mining project.

Additional Information on Proposals for Other Developments in the Area

Kootenai River Reregulation Dam

The proposed Corps of Engineers reregulation dam on the Kootenai River discussed on page 71 of Volume I of the Draft ASARCO Troy Project EIS has, at the time of the printing of this final EIS, been halted by a temporary restraining order issued by the Federal District Court. The halting of the construction of the reregulation dam has no effect on the proposed ASARCO Troy Project. If the construction project is permanently halted, however, the cumulative impacts associated with the increase in population to the Libby area as a result of the two projects occurring simultaneously would be lessened.

Draft Environmental Impact Statement for the Proposed Northern Lights Inc. 115 Kilovolt Transmission from the Troy Substation to the ASARCO Troy Project

The Montana Department of Natural Resources and Conservation, and the Kootenai National Forest completed and issued for public review the joint state-federal draft EIS for the proposed 115 kilovolt transmission line associated with the ASARCO Troy Project on September 12, 1978. Thirty days have been provided for public comment, following which a final EIS will be prepared for the project. The final EIS will contain a recommendation from the Department of Natural Resources and Conservation to the Board of Natural Resources regarding the granting of the Certificate of Environmental Compatability and Public Need required for the project, as well as a special use permit approved by the Regional Forester, Region One, U.S. Forest Service.

Public meetings to gather comment on the draft EIS prepared by DNR&C for the proposed 115 kilovolt transmission line will be held according to the following schedule:

Troy -- 7:30 p.m., October 10, at the Methodist Church.

Noxon -- 7:30 p.m., October 11, in the Multipurpose room at the Noxon High School.

Kootenai Falls Project

Northern Lights Inc., a Sandpoint, Idaho, based REA Co-Op is continuing its feasibility studies for the proposed Kootenai Falls hydrogeneration facility and plans to submit the results of the studies to the Federal Power Commission in December of 1978. The feasibility studies include a core drilling program presently occurring adjacent to Highway 2 at Kootenai Falls.

The Montana Department of Natural Resources and Conservation is currently conducting baseline environmental studies at Kootenai Falls in anticipation of receiving an application for a Certificate of Environmental Compatability and Public Need from Northern Lights, Inc.

Additional Information on Permit Applications for the ASARCO Troy Project

Hard Rock Operating Permit

On August 14, 1978, A District Court opinion was issued that held that the Montana Hard Rock Law contained the authority to require the inclusion of the ASARCO milling facilities, tailing pipeline, and tailing impoundment in the operating permit.

ASARCO Inc. submitted to the Montana Department of State Lands on August 14, 1978, an operating permit application containing all of the information necessary to complete the application, including information regarding the milling facilities, tailing pipeline, and the tailing impoundment. As provided in the department's rules and regulations adopted pursuant to the Montana Environmental Policy Act, a decision regarding the approval of the operating permit application cannot occur sooner than 30 days following the transmittal of the final ASARCO Troy Project EIS to the offices of the Governor and the Environmental Quality Council.

ASARCO Inc. has continued an exploratory drilling program since the issuance of the Draft EIS in an attempt to better define the preferred and acceptable location of the main adit for the mining project. Several unsatisfactory holes were drilled at the approximate locations of alternate adit sites No. 1, 2, and 3 as shown in Figure I-13, page 37 of Volume I of the draft EIS. At the date of the printing of Volume III-Final EIS, a hole drilled between alternative adit sites No. 3 and 4, and immediately adjacent the existing road switchback on the uphill roadcut, appeared to be resulting in more favorable adit conditions.

Montana Pollutant Discharge Elimination System Permit (MPDES)

On August 1, 1978, ASARCO Inc. filed a MPDES permit application containing an amended point of discharge with the Montana Department of Health and Environmental Sciences, Water Quality Bureau. The change in the point of discharge has resulted in the voiding of the previously proposed tentative permit for discharge contained in Volume II, Appendix H of the draft EIS. The revised tentative discharge permit and permit application are contained in Appendix A of Volume III. A public hearing for the tentative discharge permit will be held in Libby, Montana at the First National Bank meeting room.at 7:30 p.m., November 8, 1978.

Air Quality Construction Permit

As of the printing date of Volume III-final ASARCO Troy Project EIS, ASARCO Inc. had not filed an application with the Montana Department of Health and Environmental Sciences (DHES), Air Quality Bureau for construction of the ASARCO Troy Project facilities.

The DHES will review ASARCO's construction permit application, if applied for, in view of the data collected and potential impacts. For those activities and sources directly the responsibility of ASARCO, the company will be required to control emissions to the extent required by applicable rules and regulations. Based on the data collected to date, ASARCO could be granted a construction permit for the facilities described in the draft EIS.

Beneficial Water Use Permit

The Montana Department of Natural Resources and Conservation has received four applications for beneficial water use from ASARCO Inc. associated with the Troy Project. These permit applications are summarized in Appendix B of this volume. Processing of these applications is pending field investigations and public noticing requirements to insure compliance with the criteria for permit issuance under the Montana Water Use Act.

Highway Approach Permit

As of the printing date of Volume III-final ASARCO Troy Project EIS, ASARCO Inc. had not filed an application with the Montana Department of Highways for a highway approach permit required to access the proposed haul road with State Highway 57 (formerly 202), near Little Joe, Montana.

Project Permit
(Natural Stream Bed and Land Preservation Act of 1975)

A determination as to whether the proposed stream crossings of the mine haul road will require a Project Permit from the local Soil Conservation District has not been made, pending availability and review of final design criteria for the proposed stream crossings.

Operating Plan Approval - U.S. Forest Service

With the publishing of Volume III-final EIS for the ASARCO Troy Project, the Forest Supervisor of the Kootenai National Forest has issued a Record of Decision approving the ASARCO Troy Project Operating Plan. This decision will be implemented no sooner than 30 days after the final EIS and Record of Decision have been filed with the Environmental Protection Agency as provided for in the U.S. Forest Service National Environmental Policy Act Process Handbook, Section 1953.2. The Record of Decision is included as Appendix C to Volume III and contains the rationale for the decision, as well as stipulations and mitigating measures included as a condition of the approval.

Road Use Permit - U.S. Forest Service

The Record of Decision and approval of the ASARCO Troy Project Operating Plan by the Forest Supervisor, serves as an approval of the Road Use Permit. Additional design and road survey data, however, must be submitted for review by the Forest Supervisor before the conditions of the permit can be finalized.

Special Use Permit - U.S. Forest Service

The proposed 115 kilovolt transmission line associated with the ASARCO Troy Project is required to obtain a Special Use Permit from the Regional Forester, Region One, U.S. Forest Service. The decision on the Special Use Permit will be based on the results of a joint state-federal Environmental Impact Statement on the transmission line compiled by the Montana Department of Natural Resources and Conservation, and the Kootenai National Forest. A final EIS on the transmission line is expected in December of 1978.

I. SUMMARY OF DRAFT EIS RESULTS AND RESPONSE TO PUBLIC COMMENTS

The following sections contain a summary of the major conclusions and supporting information based on the Draft EIS and the responses to substantive comments or objections received on the Draft EIS.

A. The Physical Environment

1. Topography

The major impact of the proposed mining development upon the existing topography of the area would be the construction of a tailing impoundment on approximately 400 acres of near level terrain. The proposed impoundment, upon completion, would rise about 100 feet above the present ground level, significantly altering the existing topography.

The proposed project would result in an unavoidable alteration of the existing topography in several other areas, including:

a. Development of the proposed exhaust adit would add approximately 31,000 tons of waste to the existing dump at the north portal; final configuration of this dump would be approximately 160 feet high with slopes at the natural angle of response.

b. The construction of the mill facilities and associated ancillary facilities would require establishment of several cut and fill benches on the side of Mt. Vernon. A tentative concept of these benches is shown in Figures I-7 and I-14, Volume I of the draft EIS.

c. The existing road to the proposed mine and mill site would be reconstructed to a higher standard. This would result in cut banks and fill slopes higher and longer than presently exists, as well as an increased road surface width.

d. Some ground leveling for pole siting as well as construction operations would be necessary for construction of the 115 kilovolt transmission line.

Alteration of the existing topography as a result of the proposed mining project is not considered to be significantly adverse.

2. Climate

The climate in the mining proposal area is the cold snow forest type characterized by heavy snowfalls from November through March with short, warm summers. Climatic data for the area has been collected continuously by the National Weather Service at the Troy Ranger Station since 1961. Data from 1967-1976 is summarized in Volume II, Appendix E of the draft EIS. Additional 1977 weather data not available for the Draft EIS is presented in Appendix D, Volume III-final EIS.

The proposed mining project would have no measurable impact upon the existing climate of the area.

Comment:

> "Frequency-Magnitude analyses: These are nowhere to be found for any parameter from streamflow to rainfall and seismic activity. Since impacts are assessable on a probabilistic bases, these should be presented. For example, a 100-year rainfall event at Troy, based upon the 10-years of data in Appendix E, would be 53.18 inches. A 100-year low event would be 22.77 inches. Are these Log Pearson Type III analyses valid if the Troy record is normalized for a longer period of record for adjacent cities? Was 1974 a 10-year frequency event or larger? Is the unusually high Standard Deviation (variance) of monthly precipitation values a peculiar quirk of the decade of sampling, or is it typical of the site? Must we thus be very cautious about estimating impacts based upon such a short record?
>
> Analysis of the annual precipitation series indicated that, for the Troy Ranger Station:

a 200-year rainfall is	55.335"
100-year	53.179
50-year	50.886
25-year	48.414
10-year	44.747
Mean Annual Precip.	35.709
100-year low	22.769 "

Robert Curry, Letter
August 10, 1978

Response:

Frequency-magnitude analysis is not included for stream flow, precipitation, or seismic activity in the draft EIS. The Project area has unusual hydrologic and climatic characteristics that would introduce large errors in normalizing the data to a regional basis. For this reason short-term site specific data was considered more pertinent.

The 1974 weather event in the Mt. Vernon-Lake Creek area is judged to be larger than a 10-year event. The unusually high standard of deviation occurrence, when working with the presented data, is considered typical of the site.

The authors agree that caution must be used in estimating impacts based on short-term records. Caution must also be used in estimating impacts from normalized regional data not to introduce errors of the same magnitude.

3. Air Quality

a. Summary and Additional Data

The Department of Health and Environmental Sciences, Air Quality Bureau, conducted a background sampling program to determine levels of particulate matter in the Troy-Bull Lake area from July, 1977 to August, 1978. Data and samples collected were used to determine levels of total suspended particulate, particle size distribution, and trace element concentration. Location of the sample sites is shown on Figure II-1, page 80, Volume I-draft EIS.

Data collected since March, 1978, and not available for inclusion in the draft EIS is presented below.

Table I-1 Total Suspended Particulates (ug/m^3) - Additional

Date	Brown Site	Sampson Site
03/03/78	147	12
03/09/78	247	15
03/15/78	182	4
03/21/78	171	17
03/27/78	95	9
04/02/78	18	2
04/08/78	166	9
04/14/78	60	---
04/20/78	35	---
04/26/78	93	---
05/02/78	58	---
05/07/78	---	---
05/13/78	---	---
05/19/78	81	---
05/25/78	52	---
06/01/78	85	17
06/07/78	93	42
06/13/78	34	15
06/19/78	27	12
06/25/78	27	16
07/01/78	39	21
07/07/78	40	24
07/13/78	56	40
07/19/78	33	14
07/25/78	116	39
07/31/78	77	45
Geometric Mean (all data)	52.3	12.7
Geometric Mean (last 12 mos.)	56.8	12.7 (11 mos.)

Table I-2 Particle Size Distribution - Revised

Date	Percent of Total Particles in Range 7 u	+3.3 u-7.0 u	3.3-2.0 u	2.0-1.1 u	1.0 u
1977					
09/01 - 09/07[1]	40	Neg.	Neg.	Neg.	60
09/07 - 09/13	31	19	12	10	28
09/14 - 09/20	32	15	11	8	33
10/15 - 10/21	19	14	11	13	42
10/21 - 10/27	25	14	12	13	37
10/27 - 11/02	12	8	8	14	58
11/15 - 11/21	16	Neg.	10	Neg.	74
12/15 - 12/21	31	0.8	12	Neg.	56
1978					
01/07 - 01/13	9	Neg.	8	24	59
01/25 - 01/31	8	8	8	18	58
02/15 - 02/21	16	16	9	0.4	58
03/18 - 03/24	45	Neg.	Neg.	Neg.	55
04/09 - 04/15	19	7	15	0.3	58
06/09 - 06/15	32	20	12	1	35
06/21 - 06/27	32	19	10	8	30
07/06 - 07/12	26	19	11	8	36
08/10 - 08/16	51	14	8	7	19
Arith. Average	26.1	10.2	9.2	7.6	46.8

[1] The data collected to date indicate that about 36.3 percent of the total falls into the larger size ranges (i.e., greater than 3.3 microns), 16.8 percent of the total is in the "respirable" range and 46.8 percent is submicron in size.

Table I-3 Trace Element Analysis - Revised

		Average Concentration, ug/m^3	
	Sampson - membrane (26 samples)	Sampson - hi-vol (26 samples)	Brown - hi-vol (42 samples)
Al (Aluminum)	0.102	0.151	0.32
Cu (Copper)	0.037	0.164	0.122
Fe (Iron)	0.147	0.108	0.783
Pb (Lead)	0.088	0.069	0.156
Mn (Manganese)	0.004	(1)	0.015(2)
Zn (Zinc)	0.015	0.013	0.028

(1)Only two results: detectable - 0.01 ug/m^3 and below detectable limits - less than 0.01 ug/m^3.

(2)Several samples below minimum detectable limits.

The additional data collected since the analysis in the draft EIS largely supports the previously stated conclusions. One difference is that there were five readings above the 24-hour federal secondary standard for suspended particulate. However, recent EPA guidelines have indicated that such violations (i.e., caused by fugitive dust uncontaminated by industrial or automobile emissions) are not to be considered when evaluating compliance with the standards. The standards were established using air quality and health data in areas where the particulate was contaminated.

The ASARCO facility, as proposed, would not result in such contamination of the particulate as emissions associated with the plant are primarily dust of the same general nature as are currently found.

The additional particle size and trace element data are not significantly different from that reported in the draft EIS, and thus do not change the evaluations contained therein.

b. Public Comments and Responses

> "There is no mention of the Class I Air Standard associated with the Cabinet Mountains Wilderness area; yet page 299 indicates that "It is not unreasonable to expect violations of the Federal Secondary Standards in and around the town of Troy, perhaps even violations of the Federal Primary and State Ambient Air Quality Standards."

Cesar Hernandez, Letter
August 8, 1978

> "Can the air quality of the Cabinet Wilderness Area (3 - 4 miles east) be guaranteed unaffected from dust, fuel fumes, and noise pollution?"

Kenneth Haisch, Letter
July 27, 1978

Response:

The Cabinet Mountains are a Class I area under the prevention of significant deterioration (PSD) requirement and a certain amount of deterioration, while minimal, is permitted. The statement in the EIS dealt with the expected growth in and around the town of Troy, and the expected violations are predicated on the relatively unregulated growth accompanying unpaved road development and the general dust that is stirred up by people's activity. The EPA rules may not require ASARCO to get a PSD permit because of the relatively low emissions from the source itself. If the ASARCO facility is in fact subject to a PSD review, the only emissions that will be analyzed for their impact on the Class I area will be those directly emitted from the facility; i.e. the mill concentrator and, to the extent that they can be accurately quantified, the secondary emissions associated with the facility. The current guidelines exclude such fugitive dust sources as haul roads, topsoil removal, etc. Fuel fumes and emissions from fuel consumption will not be present in significant magnitude to affect the wilderness area. As stated before, emissions directly related to the mine and mill operations will affect only the immediately surrounding area. It is possible, although not probable, that the increased suspended particulate associated with the general population growth could be discernible in the Cabinet Wilderness area. To the extent that the EPA rules allow, the Class I increment will be protected.

Comment:

> "The Scotchsman Peak Area underwent an inventory by the National Forest Service to determine if that area should be set aside as wilderness. The Mount Vernon mine is only one-and-one half miles from this area. Violations in quality air standards due to mine construction, increased traffic, and temperature inversions in the Bull River Valley will become frequent."
>
> Anne Oblander, Letter
> August 10, 1978
>
> "1700-1800 gallons per day of diesel fuel oil will create a large amount of air pollution in a presently pristine airshed. Could this not exceed Class II airshed standards? Would it exceed Class I standards should Scotchmans be classified wilderness?"
>
> Montana Wilderness Association
> Letter, August 9, 1978

Response:

The previous discussion of the applicability of the PSD regulations applies to Class II areas as well as Class I. The Class II increments of 19 ug/m^3 annual geometric mean and 37 ug/m^3 24-hr. maximum again would apply only to direct emissions from the ASARCO facilities, and then only if the company is subject to the PSD review process.

Comment:

> "Has any study been done on the number of people living here for treatment of respiratory ailments?"
>
> Colleen Hernandez, Letter
> August 10, 1978

Response:

No. In some of the Department of Health and Environmental Sciences' previous studies of respiratory morbidity and mortality in western

Montana, Lincoln County in general was quite low in respiratory ailment deaths. A problem inherent in these types of studies is that there aren't enough people in the Lincoln or Sanders County area to make good statistical analyses.

Comment:

> ""No wind velocity data is available for the proposal area or the weather recording stations at Troy or Heron, Montana." Incomplete information."

Colleen Hernandez, Letter
August 10, 1978

Response:

The primary value of wind velocity data is for use in modeling air quality standards associated with the PSD permit review process. The ASARCO project does not presently require a PSD permit review. The lack of wind velocity data for the proposal area does not significantly affect the air quality impact analysis contained in Volume I-draft EIS.

Comment:

> "What happens to particles in tailings pond when water evaporates? Do they become airborne? What about very dry years? And what would be the result if dust became airborne? What particulate would be in the tailing dust?"

Colleen Hernandez, Letter
August 10, 1978

> "P. 301 maintains that ASARCO's proposed peripheral discharge system, when combined with the high precipitation rate of the area, should maintain a moisture content for the deposited tailing sufficient to prevent tailing dust from becoming airborne. This is a gross assumption; when you can see from the hot month of July and possibly August, that we have a couple summer months when there is virtually no precipitation. Matter factly the year of 73 was an extremely dry one, and a number of times in the last 5 summers, the USFS has been on the verge of closing the Nat'l Forests due to dry conditions. So you can believe there's a wind around, but the moisture is not always there. A study should have been done on what would compose tailings dust and what effect could be anticipated on area vegetation and mitigation measures."

Cesar Hernandez, Letter
August 8, 1978

Response:

During dry, windy periods, parts of the impoundment surface would probably be dry enough to produce airborne dust. Any such dust would be composed of the fine grained tailing. The small amounts of reagent chemicals present in the tailing would not pose a threat to human health during these periods. Several literature sources dealing with toxic substances were consulted for potential adverse impacts through airborne particules. Few listings for any of the compounds were available. Similar chemical structures were also checked with similar results. Pine oil, one of the proposed reagents, is listed as low toxicity. Pine oil is commonly used in perfumes. The data found deals with the compound itself; i.e., inhalation of vapors or ingestion of the agent, not with trace amounts found with suspended particulate.

The Montana Hard Rock Law, as stated on page 70 of Volume I-draft EIS, requires that proper precautions must be conducted concurrently with the construction and operation of the proposed project to assure that wind erosion on exposed cuts, tailings, or spoil disposal areas would not become a public nuisance or detriment to local flora and fauna.

Should the occurrence of dust from the tailing pond become a problem, several types of fluids are available which can be sprayed on the dry surface to help control the dust. The proper operation of the peripheral discharge system of the tailing impoundment should eliminate much of the risk for airborne tailing particules. A successful reclamation program following completion of the project would eliminate the future risk for dusk from the tailing impoundment area.

Comment:

> ""One 24-hour average (site 1, 08/11/77) has exceded the federal secondary standard, but is not a violation as one reading per year above the standard is permitted." BUT "However, a full year's data have not been collected and thus a true comparison with an annual standard cannot be made." More incomplete data."

Colleen Hernandez, Letter
August 10, 1978

Response:

With the additional data on total suspended particulates presented earlier for the two sample sites (Table I-1, Volume III), a full year of data is available for comparison with an annual standard. As noted earlier, the full year's data reveals five readings above the 24-hour federal secondary standard for suspended particulate. Recent EPA guidelines have indicated that such violations (i.e., caused by fugitive dust uncontaminated by industrial or automobile emissions) are not to be considered when evaluating compliance with the standards.

Comment:

> "Deterioration of Troy's air quality is a significant impact."
>
> Colleen Hernandez, Letter
> August 10, 1978

Response:

The authors agree, however, under the present air quality laws ASARCO cannot be held responsible for sources of air pollution not directly related to the mining project. Page 409 of Chapter IV, Volume I-draft EIS contains a discussion of mitigating measures that could be undertaken to minimize the impact of the secondary growth and associated increase in particulate emissions.

Comment:

> "The great brown waste of Kellog & Wallace, Idaho will be here in our pristine Bull River Valley."
>
> Colleen Hernandez, Letter
> August 10, 1978
>
> "For the closeness of the Kellog-Wallace area to the "Troy Project", it seems that no one ever ventured to go down there and check out some of the questions that have arisen in the EIS and have only been answered vis assumptions. Are we afraid of comparing the laboratory of Kellog-Wallace and its cornucopia of problems of ASARCO's "Troy Project"?"
>
> Cesar Hernandez, Letter
> August 8, 1978

Response:

Officials from both the Department of State Lands and the Kootenai National Forest toured the existing ASARCO Inc. mining, milling, and tailing impoundment facilities near Wallace, Idaho during the compilation of the draft EIS. The problems of the Kellog-Wallace area are primarily caused by the combination of a natural disaster (1910 fire), and the long history of a large smelter in the area. The ASARCO Troy Project proposal does not contain plans for a smelter. The "great brown waste" of these areas is testimony to the result of past uncontrolled mining development without the regard for environmental concerns and cannot be compared to the present results of environmental regulation of new mining ventures such as the ASARCO Troy project.

Comment:

> "Workers in and around the mine will be exposed continually to high dust concentrations. The EIS mentions that health and safety standards set by OSHA and the Mine Safety Health Administration will be maintained (p. 27). There is no further mention of in-facility pollution or protection afforded to workers. Who will maintain these health standards? Does the state of Montana intend to monitor on-site pollution and any accompanying health effects? What agencies are responsible for inspection of the mine ventilation and fire prevention systems (p. 39)?"

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

The enforcement of health and safety standards for the construction phase of the mining project would be the responsibility of the Occupational Safety and Health Administration, Department of Health, Education, and Welfare. The enforcement of health and safety standards during the operational phase of the mining project is the responsibility of the Mine Safety Health Administration, U.S. Department of Labor. The Federal Department of Revenue is responsible for the enforcement of storage, use, and accountability regulations for blasting agents. Fire hydrants would be located and spaced according to the standards set by the National Fire Protective Association and the Montana Fire Code.

Comment:

> "Air quality is another subject that does not seem to be adequately addressed. There will be a great increase in traffic, especially heavy vehicle traffic. It is claimed that the deterioration in air quality will be short term and therefore not significantly adverse. (p. 394) Breathing the air is an immediate need for everyone and cannot be avoided while waiting for the air to clear from the mine construction, road construction, pond construction, ore trucks, and general all around traffic increase. Also, I found no mention of the thermal inversions that occur in this area and can greatly multiply the effect of suspended particles in the air."

Jean Guidry, Letter
August 7, 1978

Response:

The Draft EIS, on page 300, states that there may be some short-term increases in total suspended particulate arising from the early stages of development and other construction-type activities. These increases would be expected to be short-term in nature and confined to the immediate area of the project. Page 76 of Volume I, Draft EIS contains a discussion of the inversions that occur in the Bull Lake valley. While inversions may tend to trap and increase the levels of suspended particulate present in the air, the particulate matter suspended by increased vehicular traffic is commonly on the larger end of the particule size range and would settle out before traveling much distance. As is commonly a practice in large construction projects, sprinkler trucks could be used during dry, dusty periods to reduce the generation of dust, as high levels of dust would pose a health hazard to the construction workers, and a safety hazard caused by reduced visibility. In addition, the Montana Hard Rock Law requires that proper precautions (such as use of water truck to water roads) would be required to be taken to assure that dust would not become a public nuisance or detriment to local flora and fauna.

4. Geology

a. Summary

The major geologic structural feature is the down-dropped fault block occupied by the Bull River-Lake Creek valley. Two major north-south trending faults are located on either side of the valley.

The proposal area is in Zone 2 of a seismic risk map of the United States (Coffman and Van Hake 1973). Zone 2 covers areas in which the recorded history of earthquakes indicates that moderate seismic damage should be expected. Past earthquake history in western Montana indicate sizable earthquakes can be anticipated in the Troy area.

With the exception of the physical removal of a portion of a stratabound mineral occurrence, resulting in a reduction of identified mineral resources, the proposed project would have no direct impact upon the geology of the area. The geology, however, must be considered to have limiting influence on the proposed project in terms of location and facility design. If the identified inactive faults (Figure III-1, Volume I-draft EIS) were to become active during the life of the project, the potential for significant adverse impacts to the existing environment caused by pipeline breakage, or tailing impoundment failure would be great.

Based upon available geological, geotechnical, geophysical, structural information and upon recorded and reported mineral related activities, four mineral activity classification subunits (MACS) were delineated by the USFS in Volume I-draft EIS, pages 85-87. The proposed mining project is located in MACS-1 unit, and is the most significant stratabound copper deposit identified to date within the unit which has a very high exploration to high production potential for mineral related activity. Other important mineral exploration is occurring in MACS-1 unit and although these occurrences have not yet been fully evaluated, they could be determined to be mineable ore bodies in the future.

The U.S. Bureau of Mines, Spokane Office, provided the draft EIS with an analysis of rock mechanics data supplied by Kennecott Copper Corp. regarding mine roof and pillar strength in the proposed mine. (Appendix T, Volume II-draft EIS). The analysis concluded that the results of the Kennecott report must be considered a best case anaysis for pillar and roof safety factors; whereas for final design, a worst case analysis would be more appropriate. The anaysis by the USBS reported that the conclusion to be drawn from the analysis is not that the rock mechanics work conducted by Kennecott Copper Corp. is wrong, but rather that they must be considered optimistic.

b. Public Comments and Responses

Comment:

> "On Page 85, it was noted in a very superficial analysis of the seismic hazard to the area, that sizeable earthquakes may be anticipated in the Troy area. In light of that and the fact that seismic hazards are generally a limiting factor in risk analyses, it seems that a more detailed analysis of the seismic hazard should have been undertaken."
>
> "Norman Rasmussen, in his seismicity study for the Corps of Engineers on the Libby Additional Units and Reregulating Dam (General Designe Memorandum, Phase II, 1975), states that one could expect a 6.5 to 7.0 magnitude (richter) earthquake about every one hundred years in the Flathead Lake sub-province of the Northern Rockies, which includes the mine site area. He also concludes that if lack of local fault activity can be demonstrated that the approximate design earthquake for the Reregulating Dam would be 5.0 to 5.5 magnitude with an acceleration of 30 to 40% of gravity. Further, if local fault activity seems probable, (based on geologic fault studies directed toward determining last age of movement and probable future movement) then the design earthquake would be 6.5 to 7.0 magnitude with accelerations of 70 to 90% of gravity."

Chuck Dalby, Letter
August 4, 1978

Comment:

> "I feel that the dEIS has mis-judged the seismic hazard in the region and that this has been carried through the assessment of impact of mine-collapse, tailings-pond dam failure, and general slope stability problems. The Bull Lake fault, located 4 miles east of the project site, is doubtless part of a fault system of several faults that are responsible for the Lake Creek Valley. These include the Leonir fault and the other unnamed North-South faults mapped and unmapped, passing directly through the tailings pond site and within 1.5 miles of the mine site. All of these collectively should be considered active and should be identified with the potential activity of the Bull Lake fault."

> "Without further and considerable detailed fault evaluation at the proposed mine and tailings site, I would feel that it was mandatory to design dam and structural facilities of the mine to withstand 1.0 g acceleration with an offset of up to 20 feet along a possible fault beneath the tailings pond. This offset could be reduced or eliminated entirely by careful site engineering and evaluation, but the acceleration must be accomodated."

Robert Curry, Letter
August 10, 1978

Response:

The authors agree that additional, more detailed analysis of the local fault system would allow for a better estimate of the magnitude and frequency of future earthquake occurrences in the Troy area. The science of accurately predicting seismic activity and magnitude, however, is inexact. It is more useful to assume that a seismic event of the magnitude generally anticipated will occur during the life of the project, and require that adequate design criteria to reduce the risk of structure damage or failure during the event be a consideration when taking action on approval of the operating permit.

The draft EIS states that sizable earthquakes capable of considerable damage to poorly built or badly designed structures can be anticipated in the area of the proposed mining project. The draft EIS also states that if these faults were to become active during the life of the project, the potential for significant adverse impacts to the existing environment caused by pipeline breakage, or tailing impoundment failure would be great. For purposes of impact analysis, the draft EIS assumes that the tailing impoundment and tailing pipeline will fail during the life of the project, either partially or massively. The cause of the failure can be related to a single event, such as seismic movement, or a combination of events occurring together. A discussion of the impacts of such failures can be found on pages 310, 315-316, and pages 323-325 in Volume I-draft EIS.

The greatest risk to the tailing impoundment structure would be during operation of the mine. If the tailing pile were allowed to become saturated, seismic shock could cause liquefaction of the pile and subsequent loss of structural integrity. The design of the tailing impoundment, however, includes a monitoring program of the phreatic level (water level) in the embankment of the impoundment through piezometers. Proper management of the phreatic level in the impoundment would greatly reduce the risk for liquefaction during a seismic shock. Upon abandonment of the site, after the pile has dried out, the tailings would respond to seismic movement much as any natural sedimentary pile.

Important design criteria for stability during seismic movement can be summarized as follows:

a. The starter dam should be compacted and zoned as described in the USBM report (Appendix T, Volume I-draft EIS). If the tailing pile does become saturated, and is shaken by an earthquake, a well-compacted zoned dam may be adequate to prevent movement of the pile.

b. Adequate drainage should be provided beneath the starter dam to prevent saturation of the pile.

c. Proper operation of the peripheral discharge system will create a permeable stable beach around the periphery of the pile and prevent water buildup close to the dam.

d. Allowing fluids to drain into the substratum will improve stability of the pile. The danger of pollution of Lake Creek by tailing fluids migrating through the substratum must be weighed against the danger of pile movement during an earthquake. A completely impermeable liner beneath the pile could make proper drainage of the pile difficult and thus increase the risk of liquefaction during seismic activity. A satisfactory compromise may be compaction of the foundation soil, which would tend to force fluids to find their way into an established drain system, but would allow minor seepage into the substratum where fluids could escape by no other means.

e. Use a large area for the pile. Keeping its height low, as the current plan specifies, would considerably increase its stability.

f. Because of the flat terrain, installation of a decant drain system rather than a barge system should result in better pond control and less water draining through the pile.

Comment:

"Seismic hazards are a critical limiting factor in the design and subsequent safety of the actual mine as well as the environmental safety of the tailings pipeline and pond. Thus it seems that a separate analysis of historical seismicity of the area, as well as geologic investigation of local faults (such as the Bull Lake fault) to demonstrate their inactivity or activity should be carried out. This would allow the determination of a reasonable design earthquake (with certain accelerations) for the site. This value should then be incorporated into the design of facilities which may have dire safety or environmental consequences (i.e. mine, tailings pipeline, tailings pond)."

"If local fault activity is probable then the usage of the .1 to .4 g value in determining the mine safety factor of 2.7 as done by the U.S. Bureau of Mines, ASARCO DEIS V.II,

> Appendix T) may not be valid."

Chuck Dalby, Letter
August 4, 1978

> "I am confused by the U.S. Bureau of Mines analysis (Appendix T, V. II) of mine safety based upon a value of 0.1 to 0.4 g to realize a factor of safety of 2.7 for the mine roof. I believe that the USBM acceleration figures are not at all conservative and are probably in error. I would suggest adopting the Corps of Engineers analysis for determination of a design earthquake for a safety analysis, and would strongly urge that impact assessment be entirely different for the tailings dam in that failure (rapid) be assumed unless thoroughly different design and site evaluation be undertaken by ASARCO."

Robert Curry, Letter
August 10, 1978

> "There is also a discrepancy as pointed out in Appendix (T) between computed safety factors for the mine of ASARCO Inc. and the Bureau of Mines. For the knowledge of those considering employment in the mine it would be advisable to have a third computation made; that the truth would out."

Cesar Hernandez, Letter
August 8, 1978

Response:

The seismic acceleration value used by the USBM to calculate the pillar safety factor was the same factor used by the Corp of Engineers in designing nearby Libby Dam, a structure of greater magnitude, and one capable of producing considerably more devastation during an earthquake than the Troy Project. The value is therefore considered to be conservative for mine design.

If further studies indicate that a larger seismic acceleration value should be used, the pillar design could be adjusted while the mine is in operation. Such an adjustment would be based on better rock mechanics data than is presently available since they would have been gained from the operating mine itself.

In attempting to assess the risk of collapse by earthquake, several points must be considered. The USBM safety factor is based on an overburden depth of 1200 feet, where pillar load will be the greatest. In actual fact, overburden depths vary from 0 feet to 1200 feet; so over most of the orebody, pillar load will be less than that used in the USBM calculation, and the safety factor therefore higher.

Except in the shallowest parts of the orebody, a mine cave-in would result in no actual caving at the surface. As rocks cave into a subsurface void, they tend to increase their volume as a result of inefficient packing; they fill the void before the cave can progress beyond a certain distance upward. The overlying rocks then slowly push downward, more or less intact, on the caved rubble pile. This slow downward movement can eventually manifest itself as an adjustment of the ground surface; however, a fairly sizable cave-in at depth may produce no detectable surface subsidence.

The presence of faults in the vicinity of the deposit should not by itself preclude mining. Faults have played a major role in the genesis of the majority of the world's metal deposits and, therefore, have been a factor in the operation of the majority of metal mining operations. The Troy Project area is in fact considerably less faulted than many major mining districts. Recent movement on those faults and the threat of movement in the near future is of course a matter of prime importance; however, it is worthy of note that operating mines such as those in the nearby Coeur d'Alene mining district frequently experience sizable seismic-type shocks without adverse consequences.

Comment:

> "Bad Medicine campground, located just a few miles from the proposed mine facilities, is so named because of an earthquake in historical times."

Cabinet Resource Group,
Letter, August 19, 1978

Response:

The Bad Medicine campground obtained its name from a local Indian legend that held that the side of Mt. Vernon fell on an encampment of Indians at that location. The authenticity of the legend remains unresolved; however, most geologists agree that the event that formed the area probably did not occur in recent geologic times or during a time that the Lake Creek Valley contained human inhabitants.

Comment:

> "The Troy area has become famous for road failures due to landslides. The announced intention to use the current Forest Service road seems oblivious to this problem. Although superficial efforts at widening the main access road are intended, there is no mention that these intentions constitute a remedy for the area-wide instability. Since the slurry line will be adjacent to the road, this will increase slurry line breakage probabilities."

Environmental Information Center,
Letter, August 10, 1978

Response:

Although the areas nearby the proposed mine road have evidenced failures caused by landslides the existing road to the mine site does not evidence problems with instability. Its use is therefore preferred to the construction of an additional road to the mine site. The upgrading and improvement of the existing road will serve to lessen the risk for future stability problems by providing better drainage and construction standards than presently exist for the road. Location of the slurry pipeline would be on the uphill side of the access road for most of its route. With the exception of a massive slope failure, the pipeline would not be threatened by road slumps or stability problems.

Comment:

> "What is the geological, topographical (etc.), relationship between other ASARCO milling facilities and those proposed for the Troy Project?"

Montana Wilderness Association,
Letter, August 9, 1978

Response:

The newest, and most similar to the proposed Troy Project milling facilities of ASARCO is the Coeur Mine and milling facilities located near Wallace, Idaho. The mill is very similar to that proposed for the Troy Project, although about 50 percent smaller, and is located in mountainous terrain. The ore concentrated is primarily silver, lead and zinc, with lesser amounts of copper present. The facilities include an underground mine, milling facilities, tailing pipeline, and tailing impoundment.

Other ASARCO facilities are located primarily in Arizona and include open pit copper mines and large tailing impoundments.

5. Water Resources

a. Summary

Hydrological investigations of the Lake Creek Drainage were made by ASARCO, Inc. previous to the EIS investigations and much baseline data was gathered and reported as part of these previous efforts. Additional hydrological data was gathered by the Montana Department of Health and Environmental Sciences, Water Quality Bureau during the period from May, 1977 through Febraury, 1978 as part of the studies for the joint state-federal Environmental Impact Statement for the mining project. The 1977 water year was exceptional, with low to record low flows occurring in many drainages.

The draft EIS contains a discussion of the sources, movement, and use of groundwater resources in the area of the proposed mining project. As a part of its geotechnical studies, ASARCO Inc. drilled two deep test wells and 12 test holes at the site of the proposed tailing impoundment. A total of 25 permeability measurements in 11 test holes were made, and water levels measured in test holes and test wells. The test wells and test holes reflected the complex geology of the area with substantial vertical variations in materials encountered (Appendix C, Volume II-draft EIS). Water level data obtained to date from test wells and test holes do not provide a coherent picture of the water table or piezometeric surfac at the impoundment area.

For purposes of impact analysis in the draft EIS, it was assumed that seepage from the tailing impoundment would move directly into Lake Creek. This direction of seepage was suggested by geophysical survey, water level data and the general hydrogeological setting of the area. Additional detailed data on water levels would produce a better understanding of the water system.

As part of the EIS water resources study, a surface water quality sampling program was conducted by the Water Quality Bureau in cooperation with the Kootenai National Forest. The goals of the water quality investigation were to (1) confirm previous water quality baseline data; (2) develop baseline data for specific stream segments that may be impacted by the ASARCO development; and (3) develop an understanding of water quality dynamics in surface water systems and potential effects of the proposed development. Water Quality data generated by the USGS, the Kootenai National Forest, WADEVCO, Hartman, Montana Department of Fish and Game, and the Water Quality Bureau are listed in Appendix G, Volume II-draft EIS. From this data, sets of typical water quality data at 14 stations were selected and are shown in Table II-8, Volume I-draft EIS. All sampling stations are shown on Figure II-1, Volume I-draft EIS, and sampling in the area is summarized in Table II-6, Volume I-draft EIS. Appendix F, Volume II-draft EIS contains a description of the major surface water systems of the area and available streamflow data.

Quality is very similar in all surface waters in the drainage with only small area or seasonal variations. The basic water quality is a direct result of the quality of precipitation with some addition of ions from rock/water interactions. Biological productivity is generally low and the stream systems are poorly buffered. These streams, thus, are sensitive to changes, and can easily be adversely impacted.

The draft EIS-Volume I contains a site-specific analysis regarding the potential for, and results of, adverse water quality impacts associated with the operation of each of the proposed mining project facilities (pages 305-316).

Analysis by the Water Quality Bureau and contained in Volume I-draft EIS has shown that the normal operation of the proposed facilities would not result in a significant adverse impact to the areas existing subsurface and surface water resources. The major potentials for impact to the existing water resources of the area as a result of the proposed project would include (1) an increase in stream sedimentation during the construction phase of each facility and (2) a failure of the proposed systems resulting in the spillage of chemicals or tailings along waterways. A significant impact to water quality could occur if the tailing pipeline were to fail and tailings enter Stanley Creek or Lake Creek. Such a failure would introduce tailing sediment into the streams, increase turbidity and create tailings deposits on the stream bottom, thus causing both acute and chronic affects on the aquatic life, and a direct short-term minor impact on water chemistry. Failure of collapse of the tailing pond would introduce vast amounts of tailing sediment into Lake Creek and seriously degrade the existing water quality.

b. Public Comments and Responses

Comment:

> "Page 53, of the document ('Mineral Resources of the Scotchmans Peak Wilderness Study Area') attributing descriptive information on the Mt. Vernon ore deposit to an oral communication of Mr. Norman Lutz of Bear Creek Mining; given in 1973 at the Pacific Northwest Metals and Minerals conference in Couer d'Alene, Idaho, states 'The rocks surrounding the deposit contain abnormal amounts of pyrite,' Acid mine water anyone?"

Cesar Hernandez, Letter
August 8, 1978

> "Abandoned Mine Drainage: How is this handled? How long will sealing of the mine work? Has it ever worked in this kind of mine at this scale? Are sulfides present to cause acid-mine-drainage problems on moderate scale after full mine development of maximum surface area?"

Robert Curry, Letter
August 10, 1978

> "Considering the possibility of encountering local areas of iron sulfide concentration during the course of mining and the fact that a much larger surface area of rock will be exposed to oxidation, it seems the assumption that north adit mine water chemistry is representative of the long term water chemistry is not strictly valid. The point is that acid mine drainage is a possibility with the Mt. Vernon project and mitigating measures should be considered if it does occur."

Chuck Dalby, Letter
August 4, 1978

Response:

The entire quote from the USGS report is as follows: "Although pyrite is not a principle constitutent in the ore zone, the rocks surrounding the deposit contain abnormal amounts of pyrite. Pyrite is most abundant on the fringes of the deposit." The lack of pyrite in the ore, the disseminated nature of the sulfide minerals, and apparent low rock permeability suggest that acid drainage will never be a serious problem at this mine. Pyrite, the chief contributor to acid drainage problems, is present in small amounts in a zone around the orebody, but not in the ore itself. The mine plan does not call for extensive excavation into this pyritic zone. Oxidation and subsequent solution of the pyrite is, therefore, unlikely to occur.

Both the south and north adits have had water draining from them for a number of years and much of the original mining development was done in 1967. There have been no signs of development of acid mine waters in these adits. As described in the draft EIS, testing has shown the alkalinity generated by mine rock to be greater than the production of acidity. The best guide to potential future water quality is existing water quality originating from substantial underground workings. Although the potential for encountering pyritic materials cannot be dismissed, there is no evidence to indicate that pyrite and resultant acid mine drainage will develop from the Mt. Vernon operation.

If an acid drainage problem should develop, methods are available for its control. Sealing of the mine upon abandonment, as mentioned by Mr. Curry, is one such commonly used method, the principle being to deprive the sulfides of oxygen which is necessary for a reaction preliminary to solution and acid formation. The method is especially effective if the mine can be flooded. Very little maintenance is required to indefinitely keep a mine at least partially sealed. Most other systems, such as treatment of water with lime, require more supervision.

The reclamation plan of ASARCO Inc., as discussed on page 65, Volume I-draft EIS, provides that "all adit portals would be concreted shut and water drainage provided upon completion of mining. Post mining water accumulations would be allowed to discharge onto the waste dump patio and infiltrate into the ground water system. ASARCO has applied for a discharge permit from the Department of Health and Environmental Sciences to allow for such a discharge." Following reclamation, if the Department of State Lands is convinced that the sealed adits would not contribute to future water quality problems, ASARCO would be released from its reclamation bond and responsibility for the sealed adits. The conditions of the discharge permit, however, would continue to be the responsibility of ASARCO Inc.

Comment:

> "Page 322, assumes the proposed use of salts as road de-icing material would not have a significant impact on aquatic productivity, nowhere in the EIS is the cumulative effect of

> salts, reagents, oil from the chip road, and potential acid mine water, discussed, studied or considered."
>
> Cesar Hernandez, Letter
> August 8, 1978

Response:

Use of road salts for de-icing has not been addressed and would depend on the amount of salt that is used. Salt is very widely used in the United States for controlling road ice with very heavy applications in some areas. There should be no environmental impacts if salt is used in a normal manner for road de-icing. The draft EIS has concluded that the singular impacts from reagents, oil from the road, seepage from the tailings pond and the potential for acid mine water are not significantly adverse. The cumulative impacts of these events are difficult to predict without knowing the conditions present when they occur, as a number of variable factors could work to determine the potential for a significantly adverse impact. The possibility that chemical changes could occur in the characteristics of these agents should they all be present together under unusual conditions is unknown. It is much more likely that adverse impacts could be expected to occur as a result of excessive amounts of one particular agent reaching the stream systems.

Comment:

> "Page 312 lists 31 minerals that will constitute some fraction of the tailings, several of which are known very toxic to animals and man. Yet nowhere is it mentioned that the U.S. EPA has until July 1, 1980 to promulgate effluent guidelines for toxicity for 65 pollutants; nine of which are listed on Page 312. The Water Quality Bureau; Department of Health and Environmental Sciences proposes to grant tentative approval for an MPDES permit to ASARCO, without even knowing what levels of these constituents will be toxic."
>
> Cesar Hernandez, Letter
> August 8, 1978

Response:

The NRDC/EDF versus EPA consent agreement requires EPA to promulgate technology-based effluent standards for over 100 discharged substances including 65 toxic substances in 21 industrial categories, including ore mining. Meanwhile, the state must go with the best available information in setting effluent limits, namely the EPA "Red Book" and the existing state water quality standards. Item #5 ("toxic pollutants") on page 9 of the MPDES permit allows for permit modification in the event of promulgation of more stringent guidelines by EPA.

Comment:

> "Nowhere in the logs of test wells dug at the proposed tailings site, or in data pertinent to tailings pond seepage is it considered to have injected the wells with dyes or other trace agents to actually determine where tailings pond seepage would eventually find its way to. Almost like no one really wants to know. Why?"

Cesar Hernandez, Letter
August 8, 1978

Response:

Organic dyes are strongly absorbed by fine-grained materials such as silt and clay. In addition, the movement of groundwater in such material is very slow. The combination of strong absorption and slow movement makes dye injection an unsuitable technique for determining direction of flow.

Comment:

> "The final statement should show the locations of the proposed deep supply wells and monitoring wells on a geologic map to aid in appraisal of the impact assessment. Some information concerning the probable composition and depth of the aquifer to be utilized by the deep supply wells should be included, even if this can only be inferred from geophysical studies."

U.S. Dept. of the Interior, Letter
September 5, 1978

Response:

A geologic map of sufficient detail to provide aid in appraisal of the impact assessment for the deep supply wells is not available. The only geophysical study available for the site of the proposed deep water wells is a seismic refraction survey conducted by Dames and Moore in 1974 and discussed on page 316 of Volume I-draft EIS. The survey indicated a large aquifer present approximately 30 feet below the surface. Tentative location of the wells is shown on figure I-2, Volume I-draft EIS.

Comment:

> "Another subject that the DEIS treats lightly is the effect that the chemicals in the tailings pond will have on each other and on the water table as they filter out of the pond, especially what effect their cumulative build-up will have. The DEIS states that the reactions are unknown and then that no impacts are expected from this. I think that this assumption is not valid, if not downright naive, and that the effects of these chemicals should be researched more thoroughly."

Jean Guidry, Letter
August 7, 1978

Response:

The tailings pond will be receiving effluent from the milling operation which will contain tailings and some milling reagents and a minor amount of domestic wastes from the operation. The best available information indicates that accumulation of materials in the tailings pond probably will not create any type of toxic compounds. Generally, organic materials such as reagents would be biodegraded in a pond system. The draft EIS assesses impacts based on a pilot test of the milling process and on the 7-day, 10-year low flow in Lake Creek. Under these conditions, and with our present understanding of reagent effects, these compounds should have no impact on the aquatic system.

Comment:

> "The impact of a tailings pond dike failure on water quality in Lake Creek and the Kootenai River would be so severe that the possibility of such an event, and steps which could be taken to prevent it, should be thoroughly explored in the final EIS."

Environmental Quality Council,
Letter, July 28, 1978

Response:

Tailing pond dike failure would most probably be related to water (excluding earthquakes) either through excess water breaching the crest of the dam, or a build up in the toe of the dam to the point of saturation.

Water breaching the crest could be controlled through use of the decant system. In the event that excess water was gained in the dam through a build up of ice during the winter months, additional pumps could be installed to prepare for the spring thaw. Runoff from heavy rains would be diverted around the impoundment area. In the event water did breach the dam crest, the structure would not actually fail, but rather erosion would take place at the point of the breach. It is likely that if this condition were to arise, adequate time would be available to allow preventive measures, such as the adding of additional material to the crest of the dam.

A build up of water in the toe of the structure is potentially a more serious problem. The impoundment design for the dam includes a monitor program of the phreatic level (water level) in the embankment through piezometers in the embankment. Should the water level rise, it would be an indication that a problem was developing. Corrective measures could include placing porus weight such as mine waste rock on the toe. Another possibility would be in the installation, through horizontal drilling, of a number of perforated pipes to bleed the water level down to acceptable levels.

Comment:

> "Although you have cited literature that these chemicals will not kill bluegills, you note that salmonoids are more sensitive to pollutants. I think the chemicals should be tested using similiar water conditions as Lake Creek, (i.e. low buffering capacity, soft water, etc.) on salmonoids to determine toxicity."

John Mohar, Letter
August 10, 1978

> "Appendix H, indicates relative toxicity of the reagents, glycomethl ether, terpineol and potassium amyl xanthate and sodium bi-sulfate to Bluegills. Totally irrevalent data when the known inhabitants of area waters to be affected are salmonoids."

Cesar Hernandez, Letter
August 8, 1978

Response:

Due to the ease of laboratory testing, bluegills are commonly used to test toxic effect. Not only is the organism important, but the type of water in which the organism was tested also can influence toxicity. Due to the difficulty and expense of testing, bioassay data for toxic materials are very limited. Results of bluegill tests, however, have been widely used to predict the affect of toxic chemicals on different organisms and in different waters. The anticipated concentration of residual flotation reagents in the tailings pond will be substantially lower than shown to be toxic to blue gills. Based on Bluegill bioassays and the very low concentrations of reagents, it is estimated that there will be no impact on salmonoids from tailings pond seepage. A test of potassium anyl xanthate on salmonoids reported by the South Dakota Mines and Technology (Pub. -240 422) indicated a mean lethal concentration in the range of 70-75 mg/l which is very much greater than anticipated in the ASARCO seepage based on the test conducted by ASARCO.

Comment:

> "There is no mention of why an MPDES permit is or is not required for the tailings impoundment, when it will be the source of a pollutant discharge into area waters.
>
> I object to ASARCO being the monitors of water quality in their area of operations; this is akin to letting the fox guard the chicken coop. An independent agency should have responsibility for monitoring water quality."

Cesar Hernandez, Letter
August 8, 1978

Response:

It is the opinion of the Legal Division, Montana Department of Health and Environmental Sciences, that seepage from the tailings pond constitutes a diffuse discharge to groundwater rather than a point discharge, and therefore is not subject to control through the Montana Pollutant Discharge Elimination System.

The Montana Department of Health and Environmental Sciences is limited in its ability to provide equipment, funding, and personnel needed to maintain a water quality monitoring program for the duration of the ASARCO Troy Project. The Department would, however, regardless of whether ASARCO Inc. or another independent agency conducted the monitoring program, maintain a quality control sampling program in which samples would be obtained periodically from the monitoring sites and analyzed by the Department to provide a quality check of the sampling results obtained by the ASARCO Inc. monitoring program.

Comment:

> "The mine and mill sites will be located in steep terrain. All water drainage, of course, is downhill. Any toxic substances

that get into the water at these sites going down into Stanley Creek and Lake Creek as a result."

Russ Hudson
July 24, 1978

Response:

The control of surface water drainage at the mill and mine site is discussed on page 61, Volume I-draft EIS. No direct surface discharge into Stanley Creek of waters containing toxic substances is proposed

Comment:

"I feel the slurry line is the weakest design of the project. Some considerations are:

1. Location of the line along Stanley Creek. This seems dangerous and easily avoidable. It is dangerous due to the fact that if a break occurred the slurry would flow directly into Stanley Creek creating a sediment and possible chemical pollution problem. It is avoidable because an alternate path could be utilized (see blue line on enclosed Figure I-17). I would also recommend keeping the line of the upslope side of the access road. This way if a break occurred there would be time and space for the sediment and chemicals to settle out before reaching Stanley Creek.

2. Another concern is the time it would take (therefore the amount of slurry) to shut down the system if a break or clog occurred. Can the stilling wells handle this overflow?

3. The area which has the greatest potential impact is the crossing of Lake Creek by the slurry line. The line should cross on the access road bridge. The line should be contained in an outer pipe (a culvert), and sit in a trough with a stilling well on each side of the bridge capable of containing the maximum volume of slurry expected if a clog or break occurred."

Brad Sheppard, Letter
August 1, 1978

Response:

1. Although the location of the proposed pipeline is not yet known pending the results of future survey work along the 600-foot corridor, the

pipeline would be located as distant from Stanley Creek as is possible and in most instances on the uphill side of the existing road. Possible exceptions to this would occur where it is necessary to cross Stanley Creek with both the road and the pipeline, and along the Stanley Creek canyon where topographic limitations are present.

2. If the tailing line were to become plugged, the drop box immediately upslope from the plug would overflow. The volume of the overflow would be the volume of tailing contained in the line above that point, and the amount of tailing released into the line before the system could be shut down. The maximum tailing content of the pipeline is estimated to be 450 tons of solids. If the sensor system for tailing line monitoring discussed on pages 46 and 51 of Volume I-draft EIS were installed, the response time for shuting down the system would be very rapid.

3. See page 46, Volume I-draft EIS, for a discussion of the dual line system proposed for stream crossings. The location of stilling wells on each side of bridge crossings would increase the risk of tailing entering the stream if the line were to plug and the stilling wells overflow. It is much preferable to locate the stilling wells as distant from the stream as is possible. The only proposed stream crossing involving the likelihood of stilling wells in the vicinity of a stream is located at the upper Stanley Creek bridge crossing (Figure I-16, Volume I-draft EIS). The crossing of Lake Creek is in an area that does not require stilling wells because of the reduced gradient.

Comment:

> "On Page 98 V.I a line reads, Because channels are already changing to accommodate increased loads, further channel widening would be expected if significant amounts of new sediment in gradient as they enter the valley floor of Lake Creek.' This is poorly written and I am not sure what it means."
>
> Chuck Dalby, Letter
> August 4, 1978

Response:

The sentence on page 98 has a typographical error resulting in two sentences being run together. The sentences should properly read "Further channel widening would be expected if significant amounts of new sediment were added to the system. Lake Creek tributaries flatten substantially in gradient as they enter the valley floor of Lake Creek."

Comment:

> "The sediment load to Stanley Creek and possibly Lake Creek will surely be increased as the result of mining activities. The amount by which it increased was not adequately assessed in the

> DEIS, thus the impact of mining on the fluvial geomorphology of Stanley and Lake Creek was not adequately assessed."

Chuck Dalby, Letter
August 4, 1978

Response:

Logging and road building have occurred in the Lake Creek drainage and the present condition of Lake Creek and its tributaries probably have been influenced by these activities. With the exception of a failure of the tailings line or a tailings dam failure, the anticipated additional sediment load from the proposed mining project is not large. Addition of hundreds of tons of sediment to Stanley Creek would increase stream braiding until sediments settled in Bull Lake. Stanley Creek already is braided in places. A massive failure of the tailings dam would affect Lake Creek in a similar manner and the systems response to high sediment loads would probably be similar to its response to sediment loads from those delivered by tributaries. Impacts would include changes in hydraulic geometry of the stream.

Comment:

> " . . . it seems that the tailing pond site might be subject to encroachment by Lake Creek as a normal course of long term lateral channel migration, as well as by overbank flows during high peak flows. Also several of the proposed locations for the stripping stock piles (Figure 4, P. 5, Vol. I) appear to be located in close proximity to Lake Creek. Will there be sedimentation problems due to these?"
>
> "Is it anticipated that river control measures will be needed (such as channelization by rip-rap) will be required to enhance the integrity of the proposed tailings pond. If so, what would the impact of that be on the downstream hydraulic geometry and stability of Lake Creek?"

Chuck Dalby, Letter
August 4, 1978

Response:

The tailings dam would be on a high terrace about 40 feet above the present channel of Lake Creek and at least 100 feet east of the terrace bluff. Past slumping along these bluffs have been noted and ASARCO's engineering consultants have designed a dam to avoid problems from slumping. Mapping of the Lake Creek 100-year floodplain by ASARCO's consultants indicates that this magnitude flood would not inundate any part of the Lake Creek high terrace and would not directly affect the tailings dam or topsoil stockpiles.

Since slumping and lateral channel migration have occurred in the past, it is assumed that these processes will continue. Although slumping and flooding should not be a problem over the short time frame, it can be expected that riprapping and bank protection may be necessary at some future time. The impact of these activities on downstream hydraulic geometry and stability cannot be estimated since channel conditions at such a future time are unknown.

Comment:

> "If this tailings water reaches Lake Creek: a) Who is responsible for monitoring Lake Creek and where will their data stations be? b) Who will check their (a's) results, and how often? and c) Would this constitute a discharge into Lake Creek covered by permit?"

Brad Sheppard, Letter
August 1, 1978

Response:

a) Regardless of whether tailings water reaches Lake Creek, the Water Quality Bureau, Montana Department of Health and Environmental Sciences has assumed responsibility for monitoring biological water quality at the Chase Cutoff Bridge below the site of the proposed tailings pond; additional chemical monitoring is being considered by the WQB at stations above and below the tailings pond and in groundwater between the pond and Lake Creek; b) Results of WQB sampling may be checked by anyone at anytime, but formal checks by other labs have not been scheduled; and c) It is the opinion of the Legal Division, Montana Department of Health and Environmental Sciences, that seepage from the tailings pond constitutes a diffuse discharge to groundwater rather than a point discharge, and therefore is not subject to control through the Montana Pollutant Discharge Elimination System.

Comment:

> "The EIS characterizes Lake Creek as subject to channel widening and channel changing, and states that these processes could cause long term stability problems at the proposed tailings dam site. Although page 316 promises a discussion of mitigating steps in chapter four, the EIS does not follow through on that promise."

Environmental Quality Council, Letter
July 28, 1978

Response:

The discussion relating to mitigation of channel migration in the area of the tailing impoundment was inadvertently omitted from the draft EIS. Channel migration would be a fairly slow and evident process that could be mitigated by adequate berming or riprapping of the stream banks in the area of the impoundment. In addition, if slumping were to occur along Lake Creek, riprapping of the slope base would be necessary for stabilization of the area.

Comment:

> "In Appendix H (Vol. II), Loys P. Parrish states, 'As the waste seeps underground it will become acidic and may carry significant quantities of zinc and cadmium.' I believe this should be investigated as Lake Creek is a 'soft' water system incapable of tolerating pollution, especially metals."

Brad Sheppard, Letter
August 1, 1978

Response:

Although it is stated in a letter in Appendix H, Volume I-draft EIS, that as waste water seeps under ground it will become acidic and may carry significant quantities of zinc and cadmium, there is no evidence to support this statement and there is no reason to assume that alkaline solutions used in milling will become acidic in the tailings pond.

Comment:

> "(Vol. I, p. 61, d.) What peak discharges would these ditches handle? I would like to see a profile diagram of the tailings pond area (with 3 or 4 transects) with the 100 year peak flow estimate of Lake Creek drawn in to see how high up the tailings impoundment structure the water would reach. I would also like to see (in detailed contour map form) what exact plans are being made to prevent a peak runoff flow from Camp Creek entering the tailings pond and possibly washing out the impoundment."

Brad Sheppard, Letter
August 1, 1978

Response:

The rules and regulations adopted pursuant to the Montana Hard Rock Law provide that all water impounding structures be equipped with spillways or other devices that will protect against washouts during a one hundred year flood. The diversion ditches, therefore, must be capable of accomodating at least the peak discharge from the surrounding land surface of a one hundred year flood event.

A map delineating the approximate limits of a 100 year flood of Lake Creek and Camp Creek upon the proposed tailing impoundment was prepared by Woodward-Clyde Consultants as part of the feasibility-grade design services for the ASARCO Troy Project. The map is available for review at the offices of the Supervisor, Kootenai National Forest, or the Montana Department of State Lands. The map shows that a 100 year flood event from either Camp Creek or Lake Creek would not encroach upon the tailing impoundment.

Comment:

> "Effects of the reagents used to separate the ore from waste materials are also unclear. The impact of these chemicals in the groundwater (through seepage or spills) were not explored and the effects on air quality through evaporation were never mentioned."

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

The effects of reagents and seepage of these chemicals is discussed on pages 309-316 in Volume I-draft EIS. The concentrations of reagents in the tailing water is very small. Their evaporation characteristics are not well known, however, any substance present in such small quantities should have no impact on air quality.

Comment:

> "'Metal concentrations reported by (in the north adit) have wide variations some of which are thought to be analytical or sampling' (p. 306). Is there going to be further study of the mine waters to remedy concentration discrepancies?"

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

Montana Department of Health and Environmental Sciences is proposing a waste discharge permit as shown in Appendix A of Volume III-final EIS. ASARCO will be required to monitor their effluent to determine its chemical composition and biological impacts. The Water Quality Bureau also will conduct bioassays and chemical analysis of mine waters and receiving stream.

Comment:

> "Much of the discussion in Chapter III, Section e. on Water Quality is based on the assumption that the chemistry of a bulk sample run through the flotation/separation process is representative of waste water sent to the tailings ponds. This may be the case, but to assume that the results of such a test accurately reflect the time variable chemistry of the waste contained in the tailings pond seems tenuous. This assumption neglects the possible interaction between chemical constituents in the pond over time which may lead to formation of ion complexes not anticipated as well as the results of other complex chemical reactions which will determine the equilibrium concentrations of the various chemicals in the pond. A more detailed assessment of chemical process occurring in the tailings pond should have been made."

Chuck Dalby, Letter
August 4, 1978

Response:

Results of the test flotation/separation process are the best data available to predict water quality from this system and such tests are commonly used to determine effectiveness of a proposed metallurgical separation. Chemical reactions in the ponds may be of importance, as will be reactions in the soil system underlying the pond.

The draft EIS points out the uncertainty with which the assumptions regarding tailing pond water quality must be applied. Page 313, Volume I-draft EIS, "the tailings pond water quality would be modified, however, by a number of processes including oxidation, in the pond, percolation through tailings and percolation through the underlying silts and clays." Page 315, Volume I-draft EIS, "the reactions of organic reagents during ponding in the tailing pond and during infiltration through tailings and earth materials are unknown. These reagents may decompose in the tailings pond, as do many other organics, or they could be sorbed or altered in composition (form complex precipitates, etc.) during percolations beneath the pond."

The overall effects of the pond system can only be determined by on-site monitoring after the pond system is in operation. The metallurgical tests, however, give the best indication of the probable quality of the tailings pond water and that quality is not predicted to have aquatic impacts.

Comment:

> "P. 316 talks about the failure of large modern tailings impoundment failures being virtually unknown. Well maybe you's didn't look far enough afield or maybe you's didn't want to look very far afield. But USDA, Forest Service Research note: RM

349; from the Rocky Mtn. Forest & Range Experiment Station lists a study on just such a happening in Arizona, May of 1975!! It's also an assumption on page 324; that, 'it is unlikely in either case that riffles, the most biologically productive sections of these and other streams, would be totally inundated with silt.' Quote: RM 349, 'Pool and riffle depths were reduced 50% to 90% in May when the effluents and ore tailings inundated and buried the natural substrate.' 'As a result, the alternating pool-riffle structure with gravel substrate was permanently altered to essentially a long 'run' with sandy substrate.' Further, deposition of the tailings cemented the substrate by filling intersitial pore spaces and causing a shift of the stream channel within the flood plain."

Cesar Hernandez, Letter
August 8, 1978

Response:

After contacting both the general manager of the Pinto Valley Mine which was the subject of the Research Note, and the author of the publication, the circumstances surrounding the alleged "failure" of the tailing impoundment structure could not be verified. Although the manager of the mine, and the author of the article did not agree on the circumstances causing the tailing deposition in Pinto Creek (the author did not witness the events surrounding the deposition), it is evident that the situation did not involve the "failure" of a large modern tailing impoundment. The manager of the mine contends that tailings were deposited into Pinto Creek as the result of a blocked ditch into which tailings were being routed. The author of the publication maintains that waters were allowed to overtop the tailing impoundment and subsequent erosion of the impoundment allowed tailings to reach Pinto Creek. In either case, failure of the impoundment structure did not occur.

The quote referred to on page 324 of Volume I-draft EIS is in reference to the impacts resulting from a spill from the tailing pipeline, not a failure of the tailing impoundment. A discussion of the introduction of silt from the failure of the tailing impoundment can be found at the bottom of page 324, Volume I-draft EIS.

Comment:

"(Page 312) 1170 gallons per minute (gpm) is no small amount, yet there has been no discussion of chemical composition."

Montana Wilderness Association, Letter
August 9, 1978

Response:

A discussion of the anticipated chemical composition of the tailing pond seepage water begins on page 313 and ends on page 315, Volume I-draft EIS.

Comment:

> "Mine site developments in this area are located within soil units 2 and 4 (as indicated on soils map, Page 89) which are described as outwash deposits and glacial till. Most of the development takes place in soil unit 4 which is glacial till on steep to very steep slopes (30 to 60%). Because of this it can be anticipated that significant erosion and subsequent transport of sediment to Stanley Creek may occur as a result of this development."
>
> Chuck Dalby, Letter
> August 4, 1978
>
> "(Page 307) How is water to be 'captured' and 'escorted' around and through the plant?"
>
> Montana Wilderness Association, Letter
> August 9, 1978

Response:

The exact method and location of diversion for surface water at the mill site is unknown pending final design studies for the siting of the various facilities. Siting of these facilities will be dependent upon the final location of the main adit portal as discussed on pages 39-41 of Volume I-draft EIS.

The plant is sited on some small ephemeral or intermittant streams and the plant area is relatively small. Routing of these small streams around the plant area can be accomplished without increasing sedimentation by proper diversion design and construction.

The National Forests Surface Use Under U.S. Mining Laws, and Section 252.8 requires that "Operator shall comply with applicable Federal State water quality standards, including regulations issued pursuant to the Federal Water Pollution Control Act, as amended." The rules and regulations adopted by the Department of State Lands pursuant to the Hard Rock Law provide that "properly protected culverts, conduits or other artificial channels may carry surface water through the disturbed areas providing such procedures prevent pollution of such waters and unnecessary erosion." (Rule 5, F.)

Comment:

> "In our earlier comments, we emphasized the need for lowering the permeability of the soils underlying the tailings disposal site prior to deposition of tailings. At that time, we did not have available to us the results of the WADEVCO study on water quality reported in Table III-1, page 312, of the DEIS. This testing, and the subsequent analysis of the potential pollutant effect on Lake Creek outlined on page 313, tend to minimize the need for sealing the foundation."

U.S. Department of the Interior, Letter
September 1, 1978

Response:

The uncertainties present regarding the ultimate chemical characteristics of the tailing seepage into Lake Creek require that sealing of at least a portion of the pond be given consideration. A compromise must be reached regarding the risk for unknown pollutants reaching Lake Creek as a result of an unsealed pond, and the additional stability problems (phreatic water levels) that a sealed pond would cause regarding the integrity of the dam structure.

Comment:

> "It appears that no samples of groundwater were taken for chemical analysis. If such is the case I would recommend that samples be taken before mining, especially in the tailings pond area, and area surrounding the mine. This would then provide a baseline from which to determine the affect of mining and associated activities on groundwater quality of the area. In the area of the tailings pond such measurements would allow for assessment of groundwater contamination as a result of seepage."

Chuck Dalby, Letter
August 4, 1978

Response:

Groundwater in the tailings pond area was sampled in two wells in 1976. These analysis were inadvertantly left out of the water quality discussion of the tailings pond area, but are shown in the following Table I-4. The Department of Health and Environmental Sciences very probably will request ASARCO to construct monitoring wells in the vicinity of the tailings pond to determine the extend of seepage and quality of water in the groundwater system near the ponds. Groundwater sampling has been difficult in the tailings pond area due to the presence of silts and clays which do not freely yield water to observation holes.

Table I-4 Analyses of Water From Monitor Wells (Halpenny and Green 1976)

Well No.	1	1	2
Date Sampled	07-07-76	07-09-76	07-18-76
Zone Sampled	Gravel	Silt	Silt
Depth to static water level, ft	75	71.3	65
Calcium, mg/l	27	11.2	9.5
Magnesium, mg/l	4.4	4.4	1.95
Sodium, mg/l	4.1	54	2.4
Potassium, mg/l	1.0	6	2.6
Carbonate, mg/l	0	0	0
Bicarbonate, mg/l	96.2	36.4	47.6
Chloride, mg/l	7.1	51.3	< 2
Sulfate, mg/l	5	66	< 5
Nitrate, mg/l	2.8	< .5	< .5
Fluoride, mg/l	.07	.07	.05
Total dissolved solids @ 180o F, mg/l	153	250	73
Specific conductance, micromhos	200	330	82
pH	8.0	6.2	7.2

Comment:

"Who will monitor water pollution?"

Beatrice Woessner, Letter
August 4, 1978

Response:

The proposed MPDES permit requires the permittee (ASARCO) to monitor Stanley Creek above and below the point of the proposed mine adit discharge. All biological, physical and chemical analyses must be by standard methods approved by the Department of Health and Environmental Sciences (DHES). In addition, DHES will monitor Lake Creek below the proposed tailings pond on a seasonal basis beginning July, 1978.

Comment:

"Subsurface leakage into Lake Creek from the tailings impoundment is unacceptable . . ."

Arthur Gidel, Letter
July 28, 1978

Response:

The determination of what constitutes degradation is subject to broad interpretation. If, in the judgment of the Water Quality Bureau, seepage from the tailings impoundment results in degradation of Lake Creek, then the Bureau has the authority to seek an appropriate remedy. One such remedy may be to seal the pond. An accurate, quantitative analysis of metals removal by percolation is simply not feasible.

Comment:

> "What is the chance of pollution by heavy metals in the water of the drainage? Is there an effective filtering system available?"

Kenneth Haisch, Letter
July 27. 1978

Response:

Considering the nature of the ore body, the chances of heavy metals pollution from mine adit discharge water are slim. Probably the most effective and available filtering system is the soil below the waste rock dump at the adit portal. Some heavy metals are expected to seep from the tailings pond into Lake Creek (page 312, Volume I-draft EIS), however, dilution will be great and there should be no acute biological effects (page 325, Volume I-draft EIS).

Comment:

> "Are the full effects of the regents Dowfroth 250, pine oil, xanthate and sodium hydrosulfide on the environment known?"

Kenneth Haisch, Letter
July 27, 1978

Response:

The best available knowledge indicates these chemicals are relatively non-toxic. However, as with most synthetic compounds, the full environmental effects are unknown. Consequently, an effort is being made to segregate the milling waste in a separate unnatural environment, i.e., the tailing impoundment.

The Montana Department of Health and Environmental Sciences, at the request of the Department of State Lands is continuing its investigative efforts to gain a better understanding of the full effects of the proposed flotation regents.

Comment:

> "How will these chemicals react to other chemicals at the plant site?"

Kenneth Haisch, Letter
July 27, 1978

Response:

The above chemicals will be retained in the mill waste, which will be piped to the tailings pond for disposal. Hence, there will be no opportunity for interaction with other chemicals occurring naturally in water or soils at the plant site. The interaction of these chemicals with chemicals contained in the ore will produce "a relatively non-toxic, alkaline (milling) waste" (Appendix H, Volume I-draft EIS).

Comment:

> "The environmental impact statement draft Volume I, Page 113, Table II-8 shows oil and grease at Bull Lake No. 12, south end of Bull Lake and at Spar Lake near camp ground what is the cause and effect of this oil and grease?"

Kenneth Haisch, Letter
July 27, 1978

Response:

The source of this oil and grease is probably motor boat fuel. The state standard for this parameter is 10 mg/l and values less than this are not likely to form a visible scum or be detrimental to the aquatic community. However, it should be noted that specific petroleum pollutants may be harmful to certain species of aquatic life at values much lower than 10 mg/l.

Comment:

> "In the event of a chemical spill into Stanley Creek, is it known how the chemicals on site will react with other pollutants present in the drainage?"

Kenneth Haisch, Letter
July 27, 1978

Response:

The Water Quality Bureau is unaware of other pollutants in the drainage of any significance. The baseline survey found water in the drainage to be nearly pristine. Furthermore, Montana's MPDES program and non-degradation policy will allow no intentional pollution of state waters. Therefore, it is presumed that Mr. Haisch has natural background water quality constituents in mind when he referes to "other pollutants present in the drainage". However, water of the Lake Creek System, and Stanley Creek in particular, is very soft. This means that a given concentration of dissolved metals will be more toxic to aquatic organisms in Stanley Creek water than, say, in Missouri River water. Fortunately, the tailings is expected to be alkaline (as opposed to acidic) and relatively non-toxic. The real danger of an accidental spill into Stanley Creek is not chemical but rather the physical smothering of stream organisms by fine particles contained in the tails. The seriousness of such a spill (resulting from pipeline rupture) will be a function of distance from the stream and slope, soils, and vegetation on the intervening terrain.

Comment:

> "If one reduces the estimate of the 7 day 10 year low flow to 25 cfs, then the resulting ion concentrations listed in Table III-2 (page 314) will double. This would put silver, cadmium, copper, molybdenum, and zinc concentrations close to or over the acceptable limits listed in Table III."
>
> "If the 7 day 10 year low flow is being chosen as a design or illustrative flow value for water quality calculations then an attempt should be made to derive it statistically. It is not a safe assumption, based on 4 years of flow measurement, that the lowest flow is the 7 day 10 year low flow. (It may be less than or even greater than your assumed value). One way to approach this would be to regionalize low flow characteristics and extrapolate the low flow value for Lake Creek."

Chuck Dalby, Letter
August 4, 1978

Response:

The Lake Creek system near the proposed ASARCO tailings pond is unusual in that much of the flow is supplied by springs that appear to originate from Spar Lake. The system also is influenced by outflow from Bull Lake. There is insufficient data to determine the statistical 7-day, 10-year low flow in this drainage and the unusual hydrologic characteristics of this drainage make regional analysis impracticable. In 1977 this portion of Montana recorded extremely low flows in response to a severe drought. The assumed 7-day, 10-year low flow used in the draft EIS was somewhat less than the lowest measurement made on Lake Creek during this period and was lower than any previous measurement on Lake Creek during the past several years. The instantaneous low flow in a stream is usually higher than the 7-day, 10-year low flow. With lack of sufficient statistical data, a stream flow of 50 cfs was thought to be a fair approximation of the probable 7-day, 10-year low flow. If it is assumed that this low flow was in error by a factor of 2 and if concentrations in this proposed ASARCO tailings pond effluent are increased by a factor of 2, the only parameter that exceeds water quality criteria (Page 314, draft EIS), is zinc and this is exceeded by .002 mg/l. Although the hydrologic data are incomplete, it is doubtful that the 7-day, 10-year low flow assumed in this draft EIS is in error by a factor of 2.

Comment:

> "I disagree with the EIS's minimizing the effects of run-off from the mill site, channeling the natural drainage flow of streams, and seeps into Stanley Creek. It would seem to me that an oiled road, mill site, and plant area would contribute greatly to oil and grease runoff to the creek, not to mention the same substances leaking and dripping from vehicles in this area."
>
> Steve Loken, Letter
>
> "Will there be a water quality monitoring station to monitor runoff after precipitation drains through plant site?"
>
> Kenneth Haisch, Letter
> July 27, 1978

Response:

The only water quality monitoring stations proposed by the Department of Health and Environmental Sciences on Stanley Creek will be immediately above and below the point of mine adit discharge. Monitoring at these sites will be required of ASARCO in the MPDES permit as it is currently written. The MPDES program does not cover diffuse or non-point sources of pollution such as overland runoff. With proper drainage controls and reclamation of disturbed soils around the plant as provided for in the Hard Rock Law, there should be no significant impact on Stanley Creek, expecially considering that this section of the stream will be dry except during peak runoff. When water is running in the stream, it will be naturally turbid; when the stream is dry, the streambed gravels will provide additional filtration to runoff water.

Comment:

> "It appears that the standards set for Stanley Creek may well exceed the base-line levels, and therefore are already impossible to meet . . ."
>
> Bear Creek Mining Company,
> Letter, July 26, 1978

Response:

Effluent limitations set in the MPDES permit were based on "typical" water quality data presented in Table II-8 of the draft EIS. To these typical data were added an accuracy factor ("relative error") and a percision factor, i.e., one standard deviation. Some of the historical data for upper Stanley Creek, particularly early data supplied by ASARCO, were judged to be grossly inaccurate and therefore dismissed from consideration in setting effluent limitations.

Comment:

> "The EIS did not consider the possibility of seepage from the tailing pond into the Bull River drainage."

Cesar Hernandez, Public Meeting Comment
July 25, 1978

Response:

The tailing impoundment seepage will be confined to the Lake Creek drainage, and very probably will move directly into Lake Creek.

Comment:

> "Page 59. States that, 'depending on water conditions encountered in the mining process.' Apparently this is unknown, yet ASARCO has applied for a pollution discharge permit not knowing what could or could not even be encountered.
>
> In order to objectively evaluate an application for a pollution control permit, more data than 'much of the oil and grease will be removed' must be known."

Montana Wilderness Association,
Letter, August 9, 1978

Response:

An application for a discharge permit does not involve exact information from the applicant as to the quality of water anticipated to be discharged. It requires a brief description of the method of treatment that the water will receive before the proposed discharge. The Water Quality Bureau of the Montana Department of Health and Environmental Sciences places limitations on the proposed discharge including the quality of the water that would be discharged. Regardless of the unknown water conditions, the conditions of the Montana Pollutant Discharge Elimination System Permit would have to be met to avoid violation of the law.

Comment:

> "Cumulative hydrologic impact: What would happen if the Troy-ASARCO project did catalize development of the adjacent claims in northwestern Montana, including ASARCo Ross Point claims, the disputed 104 Northwest Mining/ASARCo claims at Starr Gulch, those at 7-Point Mountain, Chicago Peak, and others in the Lake Creek watershed? Since the mill is to stay open for local ore processing after the Troy Project life, these immediate watershed disturbances should be assumed and factored into any EIS for the mill. ASARCo's Bear Creek claims and Beaver Creek sites further south could also be considered peripherally. The 1800 gpm discharge through the tailings to the Lake Creek System is bound to continue for many decades and the cumulative water quality, geochemical, and flow volume effects should be assessed."

Robert Curry, Letter
August 10, 1978

Response:

If the Troy Project did catalize development of the adjacent claims in northwestern Montana, depending upon the characteristics of the development, including location, size, and life-span, the risk for potential adverse impact to the area's water systems would increase. Although the mill for the ASARCO Troy Project is proposed to remain open for custom milling services after completion of the Troy Project, the information is not available that will allow a determination of the sources of the additional development needed to supply the ore. Future ore develment in the vicinity of the Troy Project is highly speculative, at present, depending primarily on exploration results and the fluctuating metals market. There are presently too many uncertainties regarding future development of mineral resources in the area to attempt to provide for a useful impact assessment in a site-specific EIS.

Comment:

> "Because so little is known about the possible water quality impacts, under MEPA, Montana water quality laws, and the Montana Constitution, your department has a duty to study the water resource before a permit is granted. There are too many unknowns to take the chance."

Kathy Johnson, Letter
August 1, 1978

Response:

As part of the EIS studies for the proposed ASARCO Troy Project, the Water Quality Bureau of the Department of Health and Environmental Sciences provided that Department of State Lands with a study of the water resources of the area, and an analysis of the potential for adverse impacts. The limitations in available information concerning portions of the study are clearly stated in the draft EIS. The Department of State Lands will use the EIS water resources study to determine if ASARCO Inc. proposed mining project can meet the requirements of the Montana Hard Rock Law.

Comment:

> "How will sewage sludge be disposed and where?"

Montana Wilderness Association, Letter
August 9, 1978

Response:

All products from the sewage treatment facilities proposed for the ASARCO mill site (page 42, Volume I-draft EIS) would be discharged into the tailing thickener for transport to the tailing impoundment along with the mine tailing.

Comment:

> "Page 313, paragraph 1: No radiation is indicated to have been recorded from the analyses of tailing-water samples. It is not clear whether analyses were not performed or no radiation detected. If the latter, the detection limits of the analyses should be given."

U.S. Dept. of the Interior, Letter
September 5, 1978

Response::

A radiations counting of tailings and water samples from the ASARCO Troy Project was made in May of 1974 by the U.S. Bureau of Mines Salt Lake City Metallurgy Research Center. The quoted contents of that report are as follows:

> "The following is a summary of the report of our radiochemistry laboratory of the radiation counting of tailings and water samples submitted for analysis. Gamma counting was done in a 2-inch by 2-inch sodium iodide well-type counter and a combined beta plus alpha count was obtained in a 2-flow-type methane counter.
>
> Gamma:
>
> Water No. 74-618 - volume, 5 milliliters; counting time, 50 minutes; result - no counts per minute.

Tailings No. 74-616 - weight, 7.7 grams; counting time, 30 minutes, result - 49 counts per minute above background.

Beta plus alpha:

Water No. 74-618 - volume, 10 milliliters; counting time, 10 minutes; result - no counts per minute.

Tailings No. 74-616 - weight, 3.5 grams; counting time, 10 minutes; result 20.7 counts per minute above back ground. (Note: This count is probably due to low energy alpha as a thin (7mg/cm2) piece of aluminum foil effectively absorbed all of the energy.)

Neither the gamma or alpha counts are considered significant as they represent 10-4-microcuries or less."

Comment:

"The question whether remedial actions can be undertaken should the effects on Lake Creek be found unacceptable should also be addressed."

U.S. Department of the Interior,
Letter, September 5, 1978

Response:

Should unacceptable effects on Lake Creek be discovered that violated the water pollution control laws of Montana once the tailing impoundment was in operation it would be very difficult to remedy the problem. Treatment of the pond water to correct the problem could occur, although without exact knowledge as to the reasons why a problem was occurring, i.e. chemical changes in the soils underlying the pond, chemical reactions among the reagents, or other unidentified sources, it would be difficult to predict the success of such a measure. The actual transport of the seepage water to the Lake Creek system would in all likelyhood be a slow process, and would not respond immediately to treatment methods.

Comment:

Page 308 states "Although such a failure of the tailings line system could have serious impacts, the possibility of such an event is low." Where did you get this data? Running a course fluid (slurry) through a pipeline will cause extreme wear on the

> pipe and eventual failure. The slurry lines used at the Zonolite mill in Libby fail quite regularly.
>
> John Mohar, Letter
> August 10, 1978

Response:

The Zonolite mine near Libby has a tailings pond that intercepts any material that might be lost from a failure of a tailing line. With this protection, the tailing lines may have not been designed for the greatest reduction of failure. These lines carry material that is more coarse than that proposed for the ASARCO tailing line and are therefore more subject to abrasion. There have been no reported incidences of environmental problems caused by tailing spills at this property. The material proposed to be carried by the tailing line on the ASARCO project is not coarse, it is a very finelyground rock material that is slurried with water. Pipelines for carrying this material are specifically designed to resist wear and abrasion. Discussions with pipeline manufacturers and other mining companies has indicated that properly designed, constructed, and maintained pipelines have a very low probability of failure. In view of the environmental sesitivity of the area, as described in Volume I-draft EIS, there would be substantial precautions to avoid problems or failures of this pipeline. There are no firm scientific data to estimate the reliability of such lines and it should be assumed, for the purpose of preventive planning, that in the life of the project, that there may be failures of the tailings line. It is anticipated, however, that proper design, installation, maintenance and location will minimize environmental impacts of any line failures.

Comment:

> "Page 242. Page 100 indicates little ground-water information i available in this portion of Montana. Can the impacts of sewage from rural residences to Bull Lake/River and Lake Creek be identified?"
>
> Montana Wilderness Association, Letter
> August 9, 1978

Response:

Effluent from individual sewage systems can have impact on both lakes and streams and, if there is sufficient development particularly with improperly located and constructed individual waste systems, water quality problems can occur. One factor to be considered is the volume of water flowing in a river or volume of water in a lake as compared to the volume of sewage. With the exception of one location on Bull Lake, the density of residences in the Bull Lake-Lake Creek drainage is low and it is not expected that existing residences have any identifiable impact on waters. No adverse impacts have been identified from the numerous residences on Callows Island on Bull Lake, however no detailed investigations have been made. If development of residences along streams and lakes in the drainage is uncontrolled and not done in accordance with proper county and state regulations there can be identifiable impacts due to these developments. As the area develops, however, it is expected that substantial additional effort will be made to insure that the development will meet applicable sanitary standards for both counties and the State of Montana. This should prevent any identifiable degradation of streams or lakes in the area.

Comment:

> "Streamflow: Inadequate data base and inadequate evaluation of regional data have led to emphasis again on means rather than extreme limiting values. We need to know what the 100-year storm runoff will be and how this will be impacted by altered land use and runoff-infiltration parameters. This is necessary because we must assess the changes in frequency of flood and low-flow events to be expected offsite downstream from the project. Are these changes to be kept within 10% limits, or are they greater? How will this affect channel geometry, stream gradients, sediment transport, habitat values, stream patterns, aggradation, flood hazard, etc.? The data base is adequate to model these and other impacts, albeit not a good as one would like."

Robert Curry, Letter
August 10, 1978

Response:

The proposed ASARCO mining operation will have little if any affect on the 100-year flood event and the ASARCO facilities along Lake & Camp Creeks are removed far enough from the 100-year folld plains to avoid any damage to facilities. Logging in the drainage has occurred and probably has impacted the 100-year flood. The impact of land practices on extreme events such as the 100-year flood are dependent on the area of land or the percentage of a drainage basin that is influenced by the land activities. A mining operation will affect only a very small portion of any of these drainage basins and it is doubtful that the mining impact on the 100-year flood event would be noticeable or measurable.

Comment:

> "Page 320. Except oil and grease must be added to future mine water discharge resulting from heavy equipment within the mine."

Montana Wilderness Association,
Letter
August 9, 1978

Response:

The proposed MPDES discharge permit limits oil and grease in the discharge to 20 mg/l (Appendix A, Volume III-final EIS).

Comment:

> "On Page 305 of Volume I the assumption is made that since Stanley Creek has much larger flows than the maximum proposed increment contributed from the adit (5.57 cfs), that there will be little impact to Stanley Creek. In terms of channel geometry this is probably true. In terms of water quality it may not be."
>
> "Assuming a worst case 5 cfs discharge from the mine and a Stanley Creek base flow of 1 cfs, the concentration factor would be 5:1. If acid mine drainage becomes a problem, the dissolved solids of the resultant mine waters would increase. Treatment of such mine water (as proposed on Page 306) would not remedy this and damage could occur to the quatic ecosystems of Stanley Creek and perhaps Lake Creek."

Response:

The proposed location of the mine discharge has been changed from that presented in the draft EIS (Appendix A, Volume III-final EIS). This discharge is proposed to be relocated to the segment of Stanley Creek that is normally dry--that is the segment that is downstream from the upper perennial portion of Stanley Creek and above the perennial lower portion of Stanley Creek that receives inflow from Fairway Creek. As described in Appendix F, Volume I-draft EIS, Stanley Creek below Fairway Creek has a large sustained base flow due to the seepage of water from Spar Lake. Although data are sparce relative to minimum flows to be expected, it is estimated that a 7-day 10-year low flow in this system would probably be greater than 15 cfs. The Montana Pollutant Discharge Elimination System administered by the Montana Department of Health and Environmental Sciences will provide limitations on discharges to insure that water quality of receiving waters will be suitable for prescribed beneficial uses specified by Montana Water Quality Standards. The ASARCO discharge to Stanley Creek therefore will be regulated by the Department of Health and Environmental Sciences and adverse impacts to the stream system should not occur.

Comment:

> "The net effect of the mine development on the equilibrium of Stanley Creek is difficult to assess, but it is conceivable that the sum of many small land surface alterations could disequilibrate the head waters of the creek over a period of years.

> This is turn would affect aquatic and terrestrial life dependent upon Stanley Creek. Because of this it seems that an attempt should have been made to evaluate the overall effect the project on stability of the Stanley Creek watershed."

Response:

The total land surface that may be altered by the mining operation is very small compared to the drainage area of Stanley Creek. In addition, the mining company will be required by regulations of the Department of State Lands and the Montana Department of Health and Environmental Sciences to control erosion from their disturbances. A change in the hydrologic regimen of Stanley Creek could be caused either by a change in the quantity or rate of runoff or by a significant change in the amount of suspended sediment in the stream system. None of these changes are anticipated and no overall change of the equilibrium of Stanley Creek is expected.

Comment:

> "There is a "concentration" effect in the tailing pond environment, that was not addressed. Because of evaporation of tailings waters, and the continuing addition of more chemicals, the pond water, over time could prove to become increasingly concentrated, thus becoming more of a threat in its seepage, to the Lake Creek system."

Response:

Precipitation in the vicinity of the proposed tailings pond is estimated to be about 35 to 40 inches per year. Net evaporation in this area is about 28 to 30 inches of water per year, thus there would be no net evaporation from the tailings pond but would rather be a tendency for dilution of tailing pond waters. During the summer, evaporation exceeds precipitation and there would be a tendency to concentrate substances dissolved in the water during that period. In the winter precipitation exceeds evaporation and there would be a tendency to dilute substances dissolved in the water during that time period. The body of water in the reservoir and the subsurface groundwater reservoir, however ,would tend to balance seasonal effects. The overall impact should be a small dilution.

In addition, the level of reagents used in the flotation process must be maintained at the given levels, that is, too great a concentration or too less a concentration will not achieve the desired results. Therefore, any amount of the reagents present in the return decant water from the tailing pond would be taken advantage of at the concentrator. Only that amount of reagents needed to bring the concentrator to the proper levels would be added.

Comment:

> "I am recommending that an oil skimming and settling pond be constructed by ASARCO immediately below the mill and plant sites to degrease this potential, and actual hazard in Stanley Creek. This is a commonly accepted practice in municipalities with storm sewer facilities and I would like to have this area addressed in more detail in the final statement."
>
> "When the most water will be used in the mining process and frozen state of water in the tailings pond necessitates replenishing the slurry system with ground water from ASARCO's wells, what will the effect be on already low seasonal flows in Stanley Creek, (who's flow in mid-winter is mostly dependant on ground water recharge? There are wintertime emergencies of certain mayflies, and caddisflies important to the maintenance of Stanley Creeks fishery, and water flow in the creek could become their limiting factor."

Steve Loken, Letter
August, 1978

Response:

The proposed MPDES permit will have limitations on oil and grease and it is proposed to dispose of the effluent into rock rubble which should be effective in further removal of oil and grease that remains in the effluent. There are no storm sewers proposed for the mine site and surface storm water will be routed around the mine site.

Although no detailed studies have been completed to date, it is expected that there would be significant quantities of groundwater at the proposed ASARCO well sites. As stated in the Environmental Impact Statement, there may be some affect on the Fairway-Stanley Creek stream system due to pumpage from these wells, however the volume of water expected to be pumped from the wells is small compared to the amount of water in these streams. It also should be recognized that there is probably significant groundwater storage in the area of the proposed Stanley Creek well field and this storage would be replenished during periods of high water. The impact of water withdrawal on streams therefore would be reduced by groundwater storage during high water periods - a common situation in many well fields.

Comment:

> "There are many people who have moved into the area since the Draft information was collected, and many more moving in all the time. These people will utilize wells as a water source (Vol. I, p. 350), and are in danger of drinking contaminated water if the seepage from the tailing pond enters the ground water. This problem is not adequately spoken to."

Brad Sheppard, Letter
August 1, 1978

Response:

In the very near vicinity of the tailings pond, and probably including a sector between the tailings pond and Lake Creek there may be a zone of groundwater that will be of poorer quality than most groundwater in the Lake Creek drainage. Due to property ownership it is doubtful that any use of this groundwater will occur in the future and based on calculations of water quality there is no evidence that this groundwater would not be suitable for normal uses. The impact of tailings pond seepage on groundwater will be a function of the volume of water in the groundwater system, the volume and quality of water seeping from the ponds. The information on the groundwater system is not complete in every detail but available data indiate that the tailings pond will not create groundwater problems in any area except the immediate vicinity of the ponds. The magnitude of groundwater degradation in the vicinity of the ponds is expected to be small.

Comment:

> "On Page 98 of Volume I the Statement is made that Lake Creek has the competence to transport any material potentially released to it from mining and related activities. This statement may be misleading. The competence of a stream is a measure of its ability to move material of particular size as bedload, and is defined as the largest size grain that a stream can move in traction as bed load."

Chuck Dalby, Letter
August 4, 1978

Response:

Material entering Lake Creek system due to the mining operation could be both fine grain material, such as tailings and could be course grain materials such as erosion or slope debris from mining areas. The Lake Creek system has a large capability for transporting both coarse and fine materials and with the anticipated regulatory control of the Forest Service, Department of State Lands and the Water Quality Bureau it is anticipated that the mining area will not contribute any major loads either as bed loads or suspended sediment to the Lake Creek System. The consequences of a tailings pond failure are described in the Draft EIS. In summary it can be said that the probability of such a failure appears remote, however , if the pond did fail in a rapid manner the consequences could be very severe. The objective of the discussion in the draft EIS was to indicate that any small sediment impacts on the stream could cause water quality impacts but probably would not alter the stream geometry due to the ability of this stream system to transport materials.

Comment:

> "Baseflow: It is very difficult to piece together from the dEIS and assessment of impacts of withdrawals of make-up water, and dewatering of the mine upon the baseflow the tributary streams that will receive leachate from the tailings area and runoff from the mine operations. The Water Quality Impacts section (V I, p. 312-315) is based upon an assumed constant base-flow for dilution of about 50 cfs in Lake Ck. The existing stream gauging data suggest that this is a reasonable value - for today, prior to mine development. Twenty to 60 years of make-up water pumping could decrease this during dry years, thus causing the effluents to exceed present allowable limits unless additional surface waters were diverted to Lake Creek. While this is perfectly feasible, its impact should be addressed. A possible genuine error is made on p. 316 in the discussion of Stanley Creek Well Field wherein the annual acre-foot water requirement is divided to assume a continuous flow rate of 3.8 cfs to show that there would be minimal impact upon base-flows for dilution. Although not clear, this is illogical since make-up water would be needed most during prolonged drought in summer months when pumping would have to be at higher rates and base-flow reductions would be proportionally greater."

Robert Curry, Letter
August 10, 1978

Response:

In Appendix F, Volume II-draft EIS, is a discussion of surface water flows in the entire mining area including a schematic diagram showing water in all the systems and their relationship to other systems. Pumping of make-up water should have no long-term impacts on the base flow of any stream in the area as the water removed from the groundwater will be recharged on a continuing basis. The proposed rate of flow of make-up water from the Stanley Creek well field is the maximum make-up water during the maximum demand period and average make-up water would be substantially less.

Comment:

> "It would be informative to list the chemical composition of reagents which make their way to the tailings pond (e.g., Dowfroth 250, Pineoil, Xanthate) and to explain what happens to these compounds (which are apparently released in sizeable quantities) in the tailings water and what their ecological effects might be. Do they evaporate, condense, absorb, or accumulate to high concentrations in recycled tailings water?"

Department of Natural Resources
and Conservation, Letter
August 10, 1978

Response

The chemical composition of these three agents are given in Volume I-draft EIS page 314. A discussion of these reagents is contained in Appendix T, Volume II-draft EIS. It is expected that the sodium hydrosulfide would decompose in the pond system and that the other reagents would have a low to moderate rate of biological decomposition. In the milling circuit, the objective is to maintain floatation reagents at optimum concentrations to perform the floatation and to use as little chemical as possible due to their high costs. It is therefore anticipated that floatation reagents present within the tailings will be maintained at approximately a constant concentration for use in the milling circuit and there will be no accumulation in the system.

Comment:

> "Page 305. The document indicates 'toxic chemicals' are not to be present in the tailings. Why is it mentioned here?
>
> Page 309 (final sentence). Page 305 clearly states spillage of 'toxic chemicals' involved in this operation. If so, where?
>
> Page 325. The document keeps flip-flopping on the matter of toxic waste. If those metals indicated here 'exceed water quality criteria' in the tailings impoundment, why wouldn't they be found in the slurry mix? (as indicated beginning on pg 323 - Tailings pipeline)."

Montana Wilderness Association,
Letter
August 9, 1978

Response:

The use of the phrase "toxic chemicals" on page 305 is misleading, as the reviewer has pointed out. As stated on page 309, "Based on the chemical quality anticipated in the tailings, it is concluded that toxic concentrations of metals probably would not be reached in either the Stanley or Lake Creek systems; however, a problem could occur from suspended sediment and turbidity." In this case, the potential toxicity would be a function of the dilution factor present in the stream water. The risk for serious consequences of a tailing spill should it reach a stream would not be in toxicity of the chemicals present, but rather in the large amounts of smothering sediments introduced to the stream. The toxicity criteria for metals referred to by the reviewer is primarily based upon chronic effects, and not acute effects which a tailing spill would produce.

6. Soils

a. Summary

Soils in the Mt. Vernon Lake Creek area are very productive and support a dense natural diverse plant cover. This cover is primarily conifers and related shrub and grass species. The area has been glaciated by both Continental and Alpine glaciers and covered with a wind blown deposit 10-18 inches deep.

A soil survey of the area was conducted by Montana Testing Laboratories Inc. (Stearns-Roger 1975). The soils were described mapped and classified. The soils map appears as figure II-2 Vol. I-draft EIS, page 89.

The principal impact to the soil resource would be the direct disturbance and compaction during the construction phase of the project. Other impacts to the soil would be erosion from areas disturbed during construction and not revegetated during the project life, and mass movement of soils on any areas of unstable soil caused by construction activities. There will be compaction and alteration of the soil in the tailings impoundment during the life of the project resulting in possible reduced production capacity of the soil after reclamation.

During construction, slightly more than 1 million cubic yards of top soil will be removed and stockpiled for reclamation use at the end of the project. Plans call for restoring 2 feet of top soil to the tailings impoundment area. Reclamation of disturbed ground resulting from construction of the mill and related facilities would occur as discussed in the reclamation plan, pages 64-70, Volume I-draft EIS.

An experimental tailings impoundment area is to be constructed to conduct reclamation and vegetation studies to insure successful reclamation and vegetation of the tailings impoundment area.

b. Public Comments and Responses

Comment:

> "There is no reference that I could find to increased soil erosion that will result from construction of the mine, road, and pond and from increased activity in general. Temporary turbidity of the water is mentioned as a possibility, however soil erosion is a continuing, cumulative process."

Jean Guidry, Letter
August 7, 1978

Response:

A discussion of the potential for, and impacts caused by increased erosion and subsequent sediment transport as a result of the proposed project can be found on pages 301-308, 319-324, and 326-327 of Volume I-draft EIS.

Comment:

> "It seems that the soils along the pipeline route are very unstable; it therefore seems likely that a 6½ mile long pipeline is apt to be a bit shakey. Statements like 'it is anticipated that with careful design construction, installation and operation, this system would be relatively safe.' (p. 308) are not very reassuring. How can something so long, built on land that is constantly slumping, remain intact for a minimum of 16 years?
>
> The statement that there are no known failures of milling facilities and tailings thickeners in Colorado, Idaho, and Montana (what about other states?) tells us nothing--how many have had 6½ mile slurry pipelines built on unstable soil? What is not being said by the statement on page 309 that 'There should be no water quality impacts from these structures during the operation's life.'? (emphasis added.) This seems significant in light of the statement on page 397 that 'In consideration of the relationship between the proposed short-term use of the environment, and the maintenance and enhancement of the area's long-term productivity, the possibility for failure of the proposed facilities must certainly not be ignored."

Cabinet Resource Group, Letter
August 19, 1978

Response:

A continual monitoring and inspection program would aid the tailing pipeline to remain intact for the life of the project. Through this kind of program any evident problems could be identified and corrective measures taken, if necessary, to maintain the integrity of the facility. The proposed location of the pipeline adjacent to the mine haul road would aid in providing continual visual inspection as to the condition of the pipeline and the soils upon which it is proposed to rest. For the purposes of impact analysis in the draft EIS, it was assumed that failure of the pipeline would occur sometime during the life of the project, regardless of the maintenance program.

A successful reclamation program would reduce the risk for any long-term water quality impacts from the mining facilities. The Department of State Lands would have to be convinced that the potential for long-term impacts was adequately reduced before ASARCO Inc. could be released from the reclamation bond posted for the project.

B. The Biological Environment

1. Flora

a. Summary

Vegetation of the area is primarily a coniferous forest of Western Larch Douglas Fir. Vegetative mapping and habitat typing for the study area was done by the U.S.F.S. and Bonneville Power Administration, (1975-1976) shown in figure II-3 pgs. 123, Volume I-draft EIS. Principal habitat types on the area proposed for development are WRC/Clun and WH/Clun, both indicators of high production potential for wood production.

The major impact to the vegetation of the area as a result of the proposed project would be the direct removal of vegetation during the construction of various project facilities. The Stanley and Lake Creek areas have high potential for wood production and are generally well suited to intensive forest management. Nearly all of the proposed facility construction would occur in the highly productive cedar and hemlock climax areas, as well as areas of vegetation important to wildlife. Removal of vegetation and it's loss of productive capacity would not be permanent at any of the proposed facility sites with the possible exception of the main access road. Reclamation, if successful would return those areas disturbed during the life of the project to a productive capacity.

An alteration of the soil chemistry in the tailings impoundment through an ion exchange with the tailings could have the effect of limiting productivity of deeply rooted species upon reclamation. A break in the tailings line would result in a spillage of tailing effecting adjacent vegetation by burial or alteration of the existing substrata.

A discussion of site-specific vegetation impacts is contained on pages 317-319, Volume I-draft EIS.

Comment:

> "The sections dealing with the flora could be strengthened by explaining how the various forest habitat types differ in productivity and recovery rate and by examining forest impacts in light of long-term loss of the productivity base rather than initial clearing of timber.
>
> For instance, while the value of timber existing on the 1,050 acres affected by the project has been determined, little mention has been made of the potential loss of prod uction during the life of the project. Using mean yield capabilities presented by Pfister, et. al. in "Forest Habitat Types of Montana" for the two most prevalent habitat types, WRC/CLUN and WH/CLUN, the foregone production of forest products would be approximately 100,000 cubic feet per year or 1.9 million cubic feet for the life of the project.
>
> Also, the statement 'Reclamation, if successful, would return those areas disturbed during the life of the project to a productive capacity' would appear to be somewhat optimistic. Changes in the chemical and physical structure of the affected area could affect the flora for significant length of time beyound the initial reclamation attempt. This affect should be considered in determining long-term effects of the project on both flora and fauna, aesthetics, recreation, etc."

Dept. Natural Resources and Conservation
Letter
August 10, 1978

Response:

The areas proposed for development of the mine facilities are highly productive and the potential timber production, during the life of the project, at these facilities could be in the neighborhood of 1.9 million cu. ft. The potential for loss of vegetative production in the Lake Creek Valley through subdivision and development is even greater.

Reclamation is expected to be successful. There will be chemical and physical changes in the soil structure, and the productive capacity may not be as high as it was originally, but there will be productive capacity. ASARCO's commitment to an experimental tailings impoundment area reclamation project during the life of the project should help insure a successful reclamation job.

Comment:

> "Will there by any effect on the Ross Creek Giant Cedars (2½ miles south)?

Kenneth Haisch, Letter
July 27, 1978

Response:

There will be no direct effect on the Ross Creek Giant Cedars from the proposed mining development. There will be an increase in visits to the cedars area due to additional people in the area. It is not anticipated that this would be detrimental to the Giant Cedars.

Comment:

> "Why were only two days allowed to complete the vegetation study?"

Charles Lawrence
Libby EIS Public Meeting
July 26, 1978

Response:

Two days were provided to the Department of Natural Resources and Conservation to field check the habitat typing already completed in the past for the Forest Service lands, and private lands. The Department of Natural Resources and Conservation provided a portion of the analysis on the potential for impacts resulting from the proposed 115 kilovolt transission line contained in the draft EIS.

2. Aquatic Studies

As part of the studies conducted for the ASARCO Troy Project EIS, the Montana Department of Health and Environmental Sciences, Water Quality Bureau provided the Montana Department of State Lands with a study of the aquatic resources of the Lake Creek Drainage. Investigated in this study, from March 1977 through February 1978, were algal nutrients, algal assays, chlorophyll/biomass accrual, periphyton, and macroinvertebrates at each of the previously established water quality sample stations along Stanley and Lake Creek (Table II-11, Volume I-draft EIS). Also included was an in-situ fish bioassy. In addition, the Montana Department of Fish and Game conducted a study of the fisheries resource of the Lake Creek Drainage, including (1) an electrofishing program and population estimates, (2) underwater fish census, (3) spawinging run survey and along Keeler Creek, (4) fishing pressure estimates and angler catch rates, and (5) an analysis of heavy metal concentrations in fish from Stanley and Lake Creek. A discussion of the results of these investigations, along with tables containing a summary of the collected data can be found on pages 126-164 of Volume I-draft EIS. Appendices I-N, Volume II-draft EIS contain a complete record of the data collected for each of the study components. A discussion of the impacts to the aquatic system productivity, along with a site-specific analysis for each of the project facilities can be found on pages 319-328, Volume I-draft EIS.

a. Summary:

Lake Creek and Stanley Creek are relatively unproductive and fragile softwater ecosystems with high diversities of algae and macroinvertebrates. Yet normal development and operation of the ASARCO mine and associated facilities should not result in significant long-term degradation of aquatic biological resources. Unforeseen catastrophic events, such as tailings dam failure or pipeline rupture, would seriously curtail aquatic productivity and diversity.

Only 10 to 20 per cent of the periphyton organic matter in Lake and Stanley Creeks is produced instream; the remaining material is derived from terrestrial sources and, in the case of Lake Creek, from Bull Lake. In-situ primary production in these streams is extremely low when compared to other Montana streams, and is limited primarily by phosphorus and micronutrients. Although ASARCO operations may increase the mobilization and biological availability of micronutrients, there should be no elevation of phosphorus levels. Consequently, nuisance algal growths should not be a problem. Toxic discharges from the mine or tailings pond are not anticipated.

Periphyton and macroinvertebrate communities are extremely diverse and reflect the pristine quality of the wter. Most of the lower plants and animals are adapted to life on firm, silt-free substrates, hence they would be sensitive to excessive erosion and stream sedimentation. Excessive erosion and sedimentation are not anticipated short of tailings pond failure or pipeline rupture. Aquatic life in Stanley Creek and Lake Creek is very susceptible to heavy metals pollution and acid mine drainage because of the unbuffered, softwater environment. However, mine discharge and tailings seepage waters are not expected to be acidic or rich in metals.

Stanley Creek and Lake Creek contain 68 kinds of diatoms (algae) that are new to Montana. Of these, 37 diatoms could not be located in available keys and it is possible that some of these are new to science. However, little work has been accomplished on the aquatic flora of northwestern Montana and it is unlikely that any of these algae are endemic to the Lake Creek drainage or endangered by the ASARCO Troy Project.

The Lake Creek Drainage has an excellent cold-water trout fishery, with growth rates and angler success rates above those of neighboring stream systems. Stanley Creek provides a particular beneficial effect to the fishery of Lake Creek by contributing a significant cold water source. It is not anticipated that the normal operation of the proposed facilities would adversely affect the fisheries of the area. The greatest risk for impact to the fisheries would originate with the potential for increased sediment transport into surface waters during construction and operation of the proposed facilities. A serious tailing spill or failure of the tailing impoundment with subsequent introduction of massive amounts of tailing to the stream system would severely impact the existing fishery, primarily thorough excessive sedimentation and alteration of habitat. The potential for direct impact to the areas sport fishery through the development of housing or other development related construction immediately adjacent streams or other surface waters is also present.

b. Public Comment and Response

Comment:

> "The EIS mentions that there were 37 diatom taxa found in the Lake Creek drainage that could be either new to Montana or new to science. Are the value of these on the ecosystem known? If they are found to be rare, and endangered by the project is there a plan for the restoration and preservation?"

Kenneth Haisch, Letter
July 27, 1978

Response:

Each organism, whether diatom or grizzly bear, has a place in nature. The biological value of each to the ecosystem is a function of (1) the organism's contribution to the productivity (energy transfer) of the system and (2) the organism's contribution to the stability of the system, i.e., if the organism were lost, are there others with a similar function to take its place? In the case of the 68 diatom taxa that were reported to be new to Montana, none of them were present in appreciable numbers and if they should be lost, there would be 262 other diatom taxa and 32 genera of non-diatom algae to continue the job of primary production. (If the grizzly bear were lost, there would be only one or two other top carnivores to take its place). There is a third, more subjective and intangible value that man places on species in the wild. It is a value that lends uniqueness and diversity to his environment. Without those 68 diatoms, Lake Creek and Stanley Creek would be much more like any other stream in northwestern Montana; with them, they are unique.

That all these diatoms are actually endemic to the Lake Creek system is rather unlikely. Mapping the distribution of plants, particularly algae, in North America is well behind similar efforts for animals. Most of northwestern Montana remains to be sampled for diatoms so very little is known about its diatom flora. Being microorganisms, they are easily transferred by wind, bird's feet, animals, etc. from one drainage to another and a given species is more likely than not to be found wherever conditions are favorable for its growth. (A majority of diatom taxa are worldwide in their distribution). A determination of whether one or more of these taxa is rare and/or endangered could not be made prior to commencement of ASARCO's operation and probably not during the life of the project. There is simply too much unsampled terrain. Even if a determination could be made, the national endangered species act would not apply.

Comment:

> "Will the fish in Lake Creek be safe to eat? Do the chemicals and/or metals accumulate in the food chain? Have there been any studies to determine if these chemicals are carcinogenic or mutagenic?"

John Mohar, Letter
August 10, 1978

Response:

The concentration of metals and chemicals in Lake Creek due to the proposed mining operation are expected to be low as described in the Volume I-draft EIS (p. 314). With the exception of floatation reagents, all of these chemicals and metals presently exist in the Lake Creek system and there is no data that indicates that they will accumulate in the food chain. It is very doubtful if these chemicals have been tested for any carcinogenic or mutagenic properties. The best available evidence indicates that all reagents, metals, other chemicals associated with this project would be relatively non-toxic. There is, however, insufficient detailed testing due to the expense, time and difficulty of testing such materials to determine the full environmental impacts. The mining process, floatation reagents, and metals associated with the ASARCO mining process are common to many mining operations in the western United States, including areas in Idaho and Montana. There have been no investigations in other mining areas in sufficient detail to determine full environmental affects of such reagents. There also has been no information obtained that shows that metal and chemical concentrations projected for this mining operation will have serious environmental impacts.

Comment:

> "Is enough known about the nutrient dynamics of Stanley Creek and Lake Creek to safely allow a 15 to 20 mg/l increase in nitrogen?"

Response:

The MPDES permit proposes a maximum instream limit of 0.47 mg/l total kjeldahl nitrogen (as N). This is the maximum historical value for upper Stanley Creek. More important is the amount of biologically available nitrogen as total soluable inorganic nitrogen (TSIN). The maximum proposed instream limit for TSIN is 0.35 mg/l as N. which equals an EPA criterion for contolling algal growth in flowing waters. This limit should be sufficient in light of the fact that primary production in Stanley and Lake creeks is phosphorus limited.

3. Terrestrial Wildlife

a. Summary

Wildlife information from the Mount Vernon Study area, April, 1977 through March, 1978 is presented in Volumes I and II-draft EIS. Additional wildlife information was collected from April 1978 through July 1978 and is presented in the following section and Appendix E of Volume III-final EIS. A Montana Department of Fish and Game Report (Joslin 1978) presents all information collected from April 1977 through July 1978 and includes distribution maps and site-specific field data obtained for each wildlife observation.

The direct influence of over 300 mine workers, as well as an increase in the general population growth of the area, was identified as most likely to be the single most significant impact upon wildlife of the Mt. Vernon-Stanley Creek area and the Lake Creek valley related to the proposed mine development. Because of time constraints, lack of previous data and the diversity of wildlife in the area, additional information would be necessary in order to accurately assess the potential for significant adverse impacts to the wildlife as a result of the proposed project. However, for reasons including habitat alteration and destruction, increased human access and activities, direct mortalities and disruption of seasonal travel routes, it is believed that the proposed project has the potential for significant adverse effect upon local populations of mountain lion, mountain goat, moose, black bear, both species of deer, elk and the mountain bluebird. The mountain goat was identified as having the greatest potential to experience adverse impacts should the mining proposal be implemented.

Certain wildlife species known to occur within the general area proposed to be affected by the mining project, or identified as having the potential to occur in a portion of the area, are threatened with extinction and are provided with protection by the (U.S.) Endangered Species Act of 1973, and the (State) Nongame and Endangered Species Conservation Act of 1973. Those species include the grizzly bear, perigrine falcon, bald eagle and gray wolf.

The proposed project would not directly impact the key habitat of any of the endangered or threatened species in the general vicinity of the project.

A study was conducted for the draft EIS (Olson, Elliott and Associates, 1977) to evaluate the quantity and quality of grizzly bear habitat and to document likely grizzly bear use of the proposed mine site and the adjacent vicinity. The study concluded that grizzly bear habitat is rated high for the vicinity around Mt. Vernon with the proposed mine site located on the outside periphery of the core habitat. Evidence suggests a small population of grizzly bears inhabit the West Cabinet Mountains.

A biological opinion prepared by the U.S. Fish and Wildlife Service regarding the grizzly bear, as required by the Endangered Species Act, was not available at the time of the printing of the draft EIS. The opinion has since been received (Appendix F, Volume III-final EIS) and concludes that the proposed ASARCO mine would not be likely to jeopardize the continued existence of the grizzly bear, or destroy or adversely modify its habitat, if ASARCO implements specific restrictions and precautions as presented below:

1. Access to Mt. Vernon should be restricted to the north side using the present road system as proposed. Access from the south (Ross Creek side) would cross core habitat and should be prohibited.

2. Improvement of the access road will attract and increase human use of the area. The Forest Service and ASARCO should develop a road system management plan to restrict non-essential use and minimize human access to the core habitat and surrounding area.

3. ASARCO should develop an educational program and appropriate firearms policies for company employees to prevent grizzly mortality from illegal killing or over-reactive self-protection measures.

4. Garbage storage and collection systems should be designed to be unattractive to bears.

5. Grizzly bear experts should be consulted prior to revegetation of disturbed sites and road grades. Proper plant species should be selected to avoid attracting bears into the area.

6. ASARCO should give consideration to a bus to transport employees from a parking area at the tailings pond into the plant site. This would minimize the potential for adverse bear-man conflicts along the access road, as well as conserving energy and reducing maintenance costs for the road.

b. Additional Information

The terrestrial wildlife text of Volume I-draft EIS contained numerous typographical errors. The author of that text has requested that since the text of the draft EIS is not being corrected and reprinted, that Volume III-final EIS contain an errata sheet for use by future reviewers of the document. The errata sheet containing corrections for the terrestrial wildlife text of Volume I-draft EIS is contained in Appendix G, Volume III-final EIS.

(1) Birds

Addendum to Table 0 - 1, Appendix E, Volume III lists bird species observed during the April through July 1978 period according to month. Addendum to Table 0 -2, Appendix E, Volume III presents only those bird species which were observed in habitat types in which they were not previously noted.

(a) Waterfowl

Breeding of great blue herons was not noted during 1977 but a rookery containing five heron nests was located along Crowell Creek, northeast of Bull Lake in 1978. Three nests were active and produced 2, 3 and 3 young. This rookery was located within 50 meters of an osprey nest which was abandoned during both seasons.

(b) Raptors

Osprey Table II - 30, Appendix E, Volume III replaces Table II - 30, Volume I and includes 1978 osprey nesting success information. During 1978 between 8 and 11 ospreys were known to be produced on the study area.

(c) Forest Grouse

The ruffed grouse drumming route table, Addendum to Appendix 0 - 3, Appendix E, Volume III was inadvertently omitted from Volume II-draft EIS. In addition to the two routes conducted during 1977 along Keeler and Stanley Creeks, another route in Stanley Creek and one in Ross Creek was conducted.

The highest average number of male ruffed grouse drums was recorded on the Keeler Creek route during both years. The drumming index noted for both routes during both years was similar, suggesting that populations of ruffed grouse in both drainages have remained stable. Data collected on the two new routes provide a basis for future comparisons.

(2) Mammals

(a) Black bears

Nine individual black bears were observed during May 1978. Six of these were seen in the TSHE/CLUN (Western hemlock/queen cup beadlily) habitat type. This habitat type occurs along the proposed haul road route and includes all proposed mine development sites.

(b) Coyote and Fox

One coyote was observed during July 1978 near Drift Lake.

(c) Mountain lion

Information was collected on an orphaned female mountain lion kitten whose maternal home range included the Stanley Mountain-Keeler Mountain area. This lion was reintroduced to the study area in May, 1978, and was monitored through July. She had subsequently moved into the Cabinet Mountains Wilderness area. Monitoring is continuing. A detailed account of this lion's known history is given in Joslin (1978).

(3) Ungulates

During the April through July 1978 period, 25 elk, 13 mule deer, 24 white-tailed deer and 1 moose observations were recorded. Environmental parameters at each observation site are presented in Addendums to Tables II - 37 through 42, Appendix E, Volume III. Review of the data concerning each environmental parameter familiarizes the reader with the nature of the terrain on which ungulates were observed on a seasonal basis. This information provides a predevelopment data base describing ungulate distribution and habitat utilization and may serve as a basis to compare changes in distribution and habitat use in subsequent years.

Fifty-three mountain goat observations were made during the April through July 1978 period. Information on sex and age classification, and aspects and elevations utilized during the four-month period is presented in Tables II - 43 through II - 45, Appendix E, Volume III.

A collective population estimate for the four concentration areas outlined in Figure II - 16, Volume I-draft EIS is not possible because the Sawtooth Mountain and Savage Mountain concentration areas do not support a year-round mountain goat population.

Data collected during intermittent winter flights over the Savage Mountain concentration area suggest that goats do not use the upper terrain in which they are observed during summer. It appears as though the goats from this area winter at lower elevations along Savage Creek and East Fork Creek in Idaho. The maximum number of goats observed in the Savage Mountain area at any one time was 13. The summer population estimate for this concentration area ranges between 13 and 20 animals.

Similar to the Savage Mountain area, the Sawtooth Mountain concentration area is used for summer range by goats, although during mild winters a limited number of goats may occur in both areas. It is suspected that the goats which summer on Sawtooth and in the upper reaches of the Middle Fork of Ross Creek winter to the south and west in the Clark Fork drainages which flow into Idaho, and on Ross Point. The maximum number of goats which were observed at any one time on the Sawtooth Mountain area was 26. The summer population estimate ranges between 25 and 40 animals. Young of the year have been observed during May on Sawtooth and the group of 13 observed during July on Savage Mountain was a nursery group, which suggests that females use both areas for kidding, although they winter elsewhere.

Mountain goats were observed on the Ross Point concentration area during all four seasons, although goat numbers increased in the fall, suggesting that many goats which use other summer ranges return to Ross Point to winter. Ross Point is documented mountain goat parturition range and critical winter habitat. Year-round use of Ross Point fluctuates according to season, with minimum use during the summer and maximum use during the winter. The maximum number of goats observed on Ross Point was 10. The population estimate for this area ranges between 6 and 10 animals.

The Spires-Spar Peak concentration area, which encompasses Mount Vernon, is also documented mountain goat parturition range and critical winter habitat. The ridge between the Spires and Spark Peak is used as a travel corridor, as well as year-round habitat by goats. The ridge is bisected by a road which connects the north and south mine adits of ASARCO's Mount Vernon mine. Information collected during this investigation suggests that a portion of the goats which winter on the Spires (east face of Mount Vernon) migrate west along the Spires-Spar Peak ridge in the spring, distributing themselves along the ridge and on Spar Peak.
The ridge itself and Spar Peak are used during the winter by three to five goats while use of the Spires is double this. Goat distribution appears to shift from the Spires west toward Spar Peak during late spring and back again by early fall. The average year-round population estimate for this area ranges from 10 to 16 animals.

The Ross Point and Spires-Spar Peak concentration areas are the only known year-round use areas on the study area and as such are extremely important to the entire mountain goat population of the West Cabinet Mountains.

c. Public Comment and Response

Comment:

> "Mountain goats are the most obvious victims of human intrusion. This species needs special attention as it has already been eliminated from the Keeler Creek drainage by hunting pressure. As for mitigation the EIS suggests weakly that the herd should be monitored, that access roads be for official use only, and a firearm restriction be implemented. Nowhere could I find a firm commitment to these restrictions.
>
> I suggest that all game and predator species be monitored throughout the mine's operation and that the data from such monitoring be made public. The monitoring should include studies on winter and summer range use, range use traditions and deviations from those traditions, productivity studies and demographic analyses including immigration and emmigration statistics. The construction permit for the mine should be contingent upon funding of these studies by ASARCO as part of its mitigation."

Rick Johnson, Letter
August 9, 1978

Response:

Monitoring is suggested as a mitigation measure because not enough is presently known about the habits and movements of the herd to offer a more substantial measure.

The suggested mitigation measures (P. 416, Volume I-draft EIS) were placed in the text by the authors prior to the receipt of the U.S. Fish and Wildlife Service biological opinion. The recommendations of the U.S. Fish and Wildlife Service calling for road closures, limited access and use, and fire arms restrictions are considered by the authors to be applicable to all species of wildlife.

No existing federal or state laws have any provisions for requiring ASARCO Inc. to fund continuing wildlife monitoring studies as a condition of approval of the operating permit for the mine.

Comment:

> "What little discussion the document contains regarding Scotchman's Peak RARE II 1-662, is incorrect (pg 264 Vol 1). The presently inventoried roadless boundary is 87,000 acres rather than 77,504, of which only 37,020 acres were inventoried in 1972 and subsequently selected by the Chief of Forest Service for further wilderness study. A more substantive point is the border is approximately quarter to one-half mile, rather than 1½ miles from the intended mine site. Increased human access into this presently unclassified roadless area will be as distinct a negative as any imaginable impact on the general area's wildlife populations, yet this factor has been neglected in the Draft EIS. The proximity to the mine and convenience of road access provided by the Mt. Vernon Saddle crossing will induce an artificial human influx capable of significant impact to mountain goat, mountain lion, elk, black bear, grizzly bear, mule deer and other species. This detrimental human influence is not limited to the Ross Point divide, but has the capability of easily effecting Scotchman's entire wildlife population because of the areas limited size. The issue of Scotchman's wildlife impacts takes on added significance when both ASARCO's Ross Point and Star Gulch mining claims are included in an overview of potential impact from cumulative corporation mining activity."

Montana Wilderness Association, Letter
August 10, 1978

Response:

You are correct, the acreage in RARE 1-662 is 87,000 not 77,504 acres.

The edge of the 662 is 1½ miles by road from the mine mill site. Public access to the roadless area via the present road system would end at a point near the mill site. The recommendations by the U.S. Fish and Wildlife Service in their biological opinion for grizzly bear are applicable to other species in the area also. These recommendations would appear in the final EIS as suggested conditions of permit approval.

Any assessment of additional wildlife impacts as a result of additional mining ventures would be speculation. No information is available at the present time upon which to accurately base the probability of these claims being proposed for development.

Comment:

"Is there a policy for native animal wildlife reclamation?"

Kenneth Haisch, Letter
July 27, 1978

Response:

No. State and federal laws do not require that successful reclamation be contingent upon providing a reclaimed area that is suitable for beneficial use by native wildlife. The ASARCO Inc. proposed reclamation plan does, however, propose to reclaim the disturbed areas associated with the mining project, in a manner that should be acceptable for use by native wildlife.

Comment :

"It is known that human activity near an osprey nest can cause nest failure (page 172). Are any measures being considered to prevent this?"

Kenneth Haisch, Letter
July 27, 1978

Response:

Ospreys which use two nest sites along the proposed route of the transmission line may be affected depending upon line location (other unidentified nesting areas may also be affected). Pairs or families may have difficulties hunting where lines cross waterways, collisions with wires is always a possibility and disturbance during construction may occur although it is not anticipated if crews are alerted to avoid nest sites. Page 334, Volume I cites that primary impacts to ospreys will come from increased human use of the valley and the associated increase in vandlaism: shooting, nest molestation and habitat alteration (Johnson and Melquist 1973). Other than increased vandalism is to inform mine workers and their families about the delicate life-cycle of ospreys and other indiginous wildlife species and hope that they are sensitive to these issues. Disturbance to nests on private land (the case cited on page 172) cannot be controlled if the disturbance is not directed toward the nesting birds. It has been suggested to ASARCO that they require all employees to go through a brief wildlife education course to familiarize them with the wildlife species of the valley and their basic life-cycle requirements. Additional consideration to these nests is given in the recently released draft EIS for the transmission line by the Montana Department of Natural Resources and Conservation.

Comment:

"The EIS draft (page 167) states that pond on Camp Creek is to be inundated by the tailing pond, what effect will this have on the nearby duck and geese nesting grounds, and the bald eagle feeding areas?"

Kenneth Haisch, Letter
July 27, 1978

Response:

Volume I-draft EIS, page 333, states that the pond at the proposed tailings impoundment site was used by mallards, common goldeneye (brood of seven), green-winged teal and blue-winged teal. These species as well as others which may use the pond would be displaced, and this area permanently lost as a feeding and brood rearing area. Geese were not observed to nest on the study area although geese were seen at the outlet of Bull Lake during the nesting season. Waterfowl displaced from the site of the proposed tailings impoundment area might be absorped into surrounding nesting and feeding habitats if these areas are not currently at carrying capacity. The overall ability of the valley to support waterfowl and other wildlife will be decreased by the amount of habitat lost. Bald eagles were not observed using the pond at the proposed impoundment site. They migrate through the area during spring and fall but were not observed to nest in the valley. Development of the tailings impoundment will not likely affect bald eages.

Comment:

"(Page 339). Suggest replace improved (mule deer) with continues."

Montana Wilderness Association, Letter
August 9, 1978

Response:

Authors disagree. The authors intent was that an improved road would increase the traffic.

Comment:

"While the subject of a Threatened Species is covered in the DEIS, no distinction which clearly and decisively complies with Section 7 of the Endangered Species Act is presented. In fact, those statements which are included evades an obligation of the Federal manager to assure protection of the species and its habitat. Statements such as, 'conflict could be minimized', or '... would not directly impact...'in the general vicinity' (emphasis added), do not coincide with Section 7 Court precedent or opinion of the Solicitor General's counsel. To state that, 'human access to the ridge comples (west of Mt. Vernon,' is simply not enough. Nowhere to be found is a firm commitment by Forest Service that such potentially detrimental situations will be resolved before highly probable impact to a Threatened Species occur. As the South Adit Road, the Bear Creek exploratory road west of the Mt. Vernon Saddle and major mine support facilities are located on public lands requiring Federal approval the Forest Service has a clear obligation under Section 7 to avoid approving actions which will be detrimental to a Threatened or Endangered Species. Mitigation of impact is simply not appropriate for Federal activities or approval of activities which would impact the Grizzly or its habitat."

Montana Wilderness Association, Letter
August 9, 1978

Response:

The draft EIS was printed prior to receipt of the U.S. Fish and Wildlife Service biological opinion on the grizzly bear. Since that time the opinion has been received and is included in the EIS (Appendix F, Volume III-final EIS). Section 7 of the Endangered Species Act has been complied with and the recommendations by the U.S. Fish and Wildlife Service are included as a portion of the final EIS.

Comment:

"There seems to be some question as to the delineation of critical grizzly bear habitat between the USFS and Fish and Game Departments, some more study would seem appropriate to correct this discrepancy."

Cesar Hernandez, Letter
August 8, 1978

Response:

As a response to this comment, the authors include a section of the U.S. Department of Interior comments on the draft EIS.

"Section II, B4 pp. 221-225; Section III, B3(d) pp. 342-343; and Section IV, Bp p. 417, describe the occurrence and projected impacts to species listed as endangered or threatened by the (U.S.) Endangered Species Act of 1973, and the (State) Non-Game and Endangered Species Act of 1973. Several references are made to 'critical habitat' or habitat identified as 'critical' for species covered in these sections. Section 7 of P.L. 93-205 gives authority to the Secretary of the Interior to determine 'critical' habitat for threatened or endangered species. The Director of the Fish and Wildlife Service, in an April 22, 1976, memorandum to all federal and state agencies concerned with Section 7 consultations, attempted to clarify the critical habitat concept. While emphasizing that the following language was not a definition, but a concept to assist federal agencies in clarification of terms, the Director stated: "Critical habitat - means any air, land, or water area including any elements thereof which the Secretary, through the Director, FWS or NMFS, has determined is essential to the survival of wild populations of a listed species or to its recovery to a point at which the measure provided pursuant to the Act are no longer necessary. Determination will be published in the Federal

Register.' To date, for listed species in the planning area, the Secretary has only proposed designation of 'critical habitat' for the grizzly bear."

Comment

> "(Page 417). If the Federal agency is to comply with the law, fewer 'coulds', 'ifs' and 'maybes' will have to be used in the final statement when addressing protecting a Threatened Species from adverse impacts."

Montana Wilderness Association, Letter
August 9, 1978

Response:

The draft EIS was suggesting possible measures to reduce the impacts on grizzly bear prior to receiving the U.S. Fish and Wildlife biological opinion. See the following comment and response.

Comment:

> "(Page 32). These maintenance roads conflict with the U.S. Fish and Wildlife Service's biological opinion and must be permanently closed in the case of the South Adit road and that section leading to the Saddle above the North Adit."

Montana Wilderness Association Letter
August 9, 1978

Response:

There are some conflicts between the U.S. Fish and Wildlife biological opinion and the operating plan as proposed by ASARCO for the use of maintenance roads. This is to be expected. The land between the North and South Adits is patented mining claims. This land also includes most of the existing maintenance roads. ASARCO's operating plan states that they propose restricted, light and seasonal traffic on these roads less than present levels. The recommendations of the Fish and Wildlife Service will be followed to the point they do not interfere with the rights of the property owner.

Comment:

> "Page 343 indicates the mine has the potential to adversely affect the grizzly, yet no recommendations are noted to alleviate the possibility. However, grizzly are not listed here (Page 396). Why?"

Montana Wilderness Association, Letter
August 9, 1978

Response:

The intent of the text on page 396 of Volume I-draft EIS is to discuss those impacts to existing wildlife species that are significantly adverse and *cannot be avoided* if the proposals are implemented. It has not been established that grizzly bear do, in fact, utilize the area of the proposed mining project. The discussion of impacts on page 343, Volume I-draft EIS states that the project would adversely affect the *potential* for human/bear encounters and the possible future management options for consideration of the area as a likely introduction site for the grizzly bear. Page 342, Volume I-draft EIS states that "The proposed project would not directly impact the key habitat of any of the endangered or threatened species in the general vicinity of the project."

Comment:

"The EIS did not consider the hunting pressure increase on other local areas as a result of the increased population associated with the ASARCO project."

Charles Lawrence, Libby Public
Meeting
July 26, 1978

Response:

Although the EIS was unable to provide site specific analysis of additional hunting pressures, page 400, Volume I-draft EIS states "The impact of more than 300 potential mine workers and their families would result in increased demands upon the Lake Creek valley to supply recreational opportunities. In the case of hunting, increased pressure has resulted in increasingly restrictive hunting seasons and the long-term loss of recreation to sportsmen."

Comment:

"The use of the word 'mitigation' in the wildlife sections of the EIS is unclear as to whether it means the protection from impacts, or the lessening of the potential for impacts."

Rick Johnson, Libby Public
Meeting
July 26, 1978

Response:

Mitigation, as used in the wildlife section, means the prevention of those impacts that are preventable through the implementation of certain measures, and the lessening of those impacts that are unavoidable.

C. The Social and Economic Environment

a. Summary

Statistics are generally collected by political or administrative boundaries, with county units usually being the lowest common denominator. Because of this, Lincoln County was selected as the basic area for the social and economic analysis related to the proposed ASARCO Troy Project. However, certain analyses were conducted for sub-county areas. For Lincoln County these areas were: the Troy area, the Libby area and the Bull Lake area, as shown on Figure II-18, Volume I-draft EIS. Although it is possible to define the Bull Lake area to extend into adjacent Sanders County, it was projected that the most significantly potential area for adverse social and economic impacts resulting from the proposed mining project would most likely be located in Lincoln County. Therefore, because of this, and constraints involving availability of data and time necessary to complete the report, the discussion of the Bull Lake area is principally contrained in Lincoln County.

The existing economic and social environment into which the ASARCO Troy Project would be interjected consists of a number of facets. These include the local economy, population, transportation routes, land use, social structure, aesthetics, archaeologic and historic resources, quality of life, and a wide range of social services. A description of each of these items is contained in Volume I-draft EIS on pages 226 through 295. Impact evaluation for the social and economic environment was based upon two sets of data projections, one based upon no mining project as proposed, and one based upon the implementation of the mining project as proposed. A comparison of these two scenarios allowed for the determination of the significance of the impacts associated with the mining project.

The anticipated impacts to the social and economic environment as contained in Volume I-draft EIS are summarized as follows:

1. Lincoln County's economic environment would undoubtedly receive direct stimulation through new employment and mining production. Table III-16, page 373, Volume I-draft EIS presents the results of comparing earnings and employment for Lincoln County with and without the mine for the representative year 1975. It shows an 11 percent increase in county employment, 13 percent increase in earnings (including proprietors' incomes and finge benefits), and a 2 percent increase in average employee earnings per worker. Although there would be an increase in earnings, persons on fixed-income would not benefit as a result.

2. County revenues associated with the ASARCO development should exceed additional expenditures. The increase in the tax base is substantial and should more than offset any operating budget impact. It is plausible that a decrease in the county mill levy would eventually result.

3. The existing municipalities of Libby and Troy are projected to bear the brunt of the population influx. The benefit of property taxation of the suburban residents is not available to the municipality to offset expenditures caused by additional rural population impacts upon urban centers.

4. The areas existing school system presently has a marginal capacity to accommodate the additional students anticipated as a result of the proposed mining project. Depending upon several factors, including the final distribution of the in-migrating families with school age children, additions to the existing school facilities during the life of the mining project may be required, based upon present levels of student capacity.

5. Table III-8, page 360, Volume I-draft EIS, projects that there would be a 6 percent increase in the population of Lincoln County as a result of the proposed mining project with the effects felt most heavily by the Bull Lake and Troy areas in proportion to their existing populations. Growth would bring new people, greater activity, generally more "urbanization", increased demand for public services and recreation facilities, greater housing needs, etc. to many existing residents who have selected a lifestyle of relative seclusion and slower pace, these changes would be detriment and a real loss in their quality of life. Others may view some or all the changes as beneficial. In particular, some individuals may enjoy greater activity and the potential for more "cultural" events.

6. Based upon the 1970 Land Use Requirements for the Libby Planning area, Libby Comprehensive Planning Program, Phase I, 1971, it is estimated that approximately 196 additional acres of land would be required to meet the housing needs of normal growth plus the mine impact population increase.

7. The increased population and development associated with the proposed mining project would result in a significant decrease in the quality of life for those individuals who consider the existing condition as desirable to maintain. Following completion of the mining project, if the area has not developed a stable and diverse economy, the "bust cycle" would also result in a significant decrease in the quality of life as established during the life of the mine.

8. The initial impact of construction workers would tend to raise housing costs for the lower income residents of the area. There would be a demand for mobile homes, apartments and rooms which are typically low income housing. Completion of the construction phase of the project would result in a surplus of this type of housing which may result in a decrease in housing costs for the lower income sector.

9. Increased population densities in the Troy area would increase the need for a central sewage system. This impact may not be adverse in that the increased density would increase the assessment base for funding a sewer system. However, the economic impact on fixed income and low income residents would be significant.

10. Increased enrollment in the Noxon Elementary School as a result of mine related development would require expansion of the existing facility.

11. As viewed from the mine access road the tailing pipelines and transmission line would present a significant adverse visual impact, as would the proposed tailing impoundment during the life of the project.

12. There would be no direct impact to any known archeological or historical sites by the proposed mining development.

Mitigation measures available to local officials are discussed in Volume I-draft EIS on pages 417-425. In addition, Appendix P, Volume II-draft EIS contains a discussion of available planning regulations and Appendix S, Volume II-draft EIS contains a discussion of available welfare assistance programs.

b. Additional Information

A review of the social and economic text of Volume I-draft EIS has revealed several inaccuracies in the data presented. The following is a list of changes that should be noted by those persons reviewing the text of the draft EIS. In addition, Appendix H, Volume III-draft EIS contains additional corrections that may aid the reader in review of the document.

1. Last sentence, page 281, Volume I-draft EIS should read "The Libby School District is served by a senior high school, junior high school, and four public elementary schools and two privately administered elementary schools."

2. Table II-65, Existing and projected enrollment information for the Troy and Libby School Districts, page 282, Volume I-draft EIS is inaccurate in its listing of capacity, surplus/deficiency, and new teachers required. The corrected Table is presented below.

Table II-65 Existing and Projected Enrollment Information for the Troy and Libby School Districts

Troy School District

School Year	Elementary	High School	Total
1977-1978 (actual)	407	218	625
1980-1981	504	270	774
1985-1986	563	302	865
1990-1991	563	302	865
1995-1996	563	302	865
Capacity (1977)*	549	300	849
Surplus/Deficiency	-14	- 2	-16
New Teachers Required	7	4	11

*An addition of six to eight rooms is presently underway.

Libby School District

School Year	Elementary	Junior High	Senior High	Total
1976-1977 (actual)	1,452	770	714	2,936
1980-1981	1,530	811	752	3,093
1985-1986	1,546	820	760	3,126
1990-1991	1,565	830	770	3,165
1995-1996	1,592	844	783	3,219
Capacity (1972)	1,600	1,000	850	3,450
Surplus/Deficiency	+ 8	+156	+67	+ 231
New Teachers Required	6	4	4	14

3. End of second complete paragraph on page 285, Volume I-draft EIS should have an additional sentence reading "The Seventh Day Adventist Church also administer a private school with a capacity of approximately 50 students."

4. Section (a) Schools, page 354, Volume I-draft EIS should read as follows:

"The forecasted population increase of 960 persons in the impact area by 1995 will include an increase of approximately 260 students. Schools within the impact area have marginal capacity to accommodate additional students. School expansion, however, may not be necessary to meet projected population needs if the distribution of additional students is such that it matches the present capacity of the schools located in their area. The final location of in-migrating families as a result of the proposed mining project will determine the ability of each school to accommodate additional students."

5. Third sentence, Section (c) School Districts, page 367, Volume I-draft EIS should read, "Based on an estimate of the number of school-age children.

6. Third paragraph, page 387 Volume I-draft EIS should read, "The Libby schools have marginal capacity to accommodate the projected student population." The next sentence does not relate to the marginal capacity and should be disregarded.

7. Section (1) Schools on page 423, Volume I-draft EIS, should read, "The Libby and Troy schools have barely sufficient capacity to meet the needs of the impact population based upon the estimated distribution of additional students. If there is more impact related development than anticipated for these areas, these school systems may not have sufficient capacity.

c. Public Comment and Response

Comment:

> "The most obvious omission is the absence of social data on the Troy-Heron area. According to the EIS authors little information is included about this part of the study area because Sanders County does not have a comprehensive plan, consequently data on housing, service, etc. are not readily available; and because the authors felt that impacts in Sanders County would relatively insignificant. Since the

> purpose of the EIS is to present an analysis of "broad cumulative environmental impacts" of the proposed development it seems imperative that if certain data are used to analyze impacts on one part of the study area, similar information must be gathered and analyzed for all of the study area lest it appear that impact is dependent on information which is readily accessible. The authors' judgment that there would be significant impact on Libby and vicinity and insiginificant impact on Noxon and vicinity is not supported by locals who appear to be knowledgeable about the study area. It seems vital that at least as much information should be collected and reported on the Noxon area and has been done for Libby."

Institute for Social Research, Letter
August 7, 1978

Response:

Page 226, Volume I-draft EIS states that the impact in Sanders County would be relatively insignificant. After further review, the authors feel that the statement may have been misleading, as some portion of the impacts, primarily social and economic, will occur in Sanders County. However, the type of impact expected is not anticipated to create the magnitude of problems as it will in Lincoln County.

The Troy-Libby area is expected to draw the greatest number of the influx of new residents as a result of the mine because of the proximity of services available to the residents. The Bull Lake area is also more conducive to development than the upper Bull River valley. The upper Bull River valley is narrow along most of its course, and the majority of the valley appears either too steep to develop, or is in the flood plain of Bull River. It appears likely that most of the impact that would occur in Sanders County would probably occur along the Clark Fork Valley. Since travel time to this area is greater, and the distance further from the proposed mine site, it is anticipated that the impact will be substantially less than in the Libby-Troy-Bull Lake areas.

The authors agree that similar information should have been gathered and analyzed for all of the study area. However, the availability of information necessary to allow the researcher to make impact projections, for the project was significantly different in Lincoln County than in Sanders County. Lincoln County is considerably further in efforts to compile planning information than is Sanders County. To do an analysis for Sanders County similar to that done for Lincoln County would have required the collection of large amounts of additional field data and the development of a base mapping program similar to that used by Lincoln County officials. Given the conclusion that the greatest potential for significant adverse impact would involve the Libby-Troy-Bull Lake area, for the reasons given earlier, constraints involving availability of data, and time necessary to complete the research and impact analysis, it was reasoned that the most effective use of the available resources would be to concentrate on the major impact area in Lincoln County.

Comment:

> "It seems to me the 'Industrial Development Tax Incentive Program' does not apply to ASARCO because it will 'create(s) a substantial adverse impact on government services' (VOL. I, p. 362) in the Troy area. At any rate Helena should rule on the applicability of this program to this project in the Final EIS so the people of this area know what to expect."

Brad Sheppard, Letter
August 1, 1978

Response:

If, as provided for in section 84301.19, subsection (3) of the Revised Codes of Montana, the ASARCO Troy Project qualifies as a "new industry", the Department of Revenue "shall then, upon proper notice hold a hearing to determine if the new industrial classification should be retained by the property." The purpose of the hearing would also be to receive testimony to aid in the determination as to whether the industry qualified as "a plant that will create adverse impact on existing state, county, or municipal services." Following the hearing, the Department of Revenue would then make the decision at to whether the ASARCO Troy project is (1) a new industry, and (2) would create adverse impact upon existing state, county, or municipal services. However, before this can occur, ASARCO must be granted the necessary operating permits from the Department of State Lands and the Kootenai National Forest, and file an application for the Industrial Development Tax Incentive Program with the Montana Department of Revenue.

Comment:

> "It also appears that the draft EIS underestimates the amount of land that will be developed by the new residents of the Bull Lake area. Apparently, the same per capita land use figures used in the 1971 Libby Comprehensive Plan were used to project the land requirements of the 400 new residents of the Bull Lake area. The draft EIS claims that these 400 new residents will require the development of only 45 acres of land."
>
> "Projecting an urban density for the Bull Lake impact area ignores a widely recognized demand in western Montana for large lots in non-urban areas. It also overlooks the policy of the Lincoln County Planning Board to discourage high density subdivisions in areas over three or four miles from existing service centers such as Troy or Libby. Whether or not this policy changes to accomodate the expected growth in the Bull Lake area, it is likely that many new residents of the Bull Lake area will purchase large lots in a non-urban recreational setting."
>
> "In addition, Montana's Sanitation in Subdivisions Law requires that lots served by individual water and sewer systems be a minimum of

> one acre in size. Assuming the nine individuals per acre of developed land the EIS projects, and the 3.4 individuals per dwelling unit the Troy area currently averages, land developed in the Bull Lake area would average approximately 2 1/2 dwelling units per acre. Unless these new land developments are served by public sewer and water, the likelihood of which is discounted in the EIS, the density the EIS projects would be inconsistent with the state sanitation laws."

Montana Environmental
Quality Council, Letter
July 28, 1978

Response:

The Environmental Quality Council's comment is well taken. The acreage requirements for the 400 new residents in the Bull Lake area may be as high as 120 acres if the development occurs in slightly more than one-acre lots.

However, of the 118 units required to house the 400 new residents 56 are temporary and 62 are permanent. (Table 111-19 on page 381 of draft EIS). The statement was made that the four existing trailer parks in the Bull Lake Area could be expanded to meet some of the needs for temporary housing. Most trailer parks are at a density of from 6 to 8 units per acre. If the 56 temporary units are located in trailer parks, about 8 acres would be required.

It is also anticipated that at least one subdivision would be developed that would provide a central water and sewer system because some individuals prefer these types of services. If this is the case, the density could be from 4 to 5 units per acre depending on the type of development. The remainder of the housing units would be located on one-acre or larger lots.

The art of predicting the distribution of future population increases and their preferred or ultimate housing characteristics is inexact. However, if the mix of housing as described above is what actually occurs, the 45 acres of land estimated for development in the Bull Lake Area may be a realistic figure.

Comment:

> "Page 282. What are the maximum school capabilities, and how much decrease in funds when the project winds down? There will also be a loss of service and teaching related jobs in direct relationship to the mine's cycle."

Montana Wilderness Assoc., Letter
August 9, 1978

Response:

A discussion of the overall assessment of revenues and expenditures for the school districts can be found on pages 367-371, Volume I-draft EIS.

Revised tables for maximum school capabilities and revisions in the test of the draft EIS pertaining to the school systems is contained on pages earlier in this document, Volume III-draft EIS.

Comment:

> "Table III-3. In a ten (10) year span, the Lincoln County population increased by 5,600 people because of Libby main dam construction (pg 239). Table III-3 fails a test of continuity. The Re-Regulation dam should account for a much higher employment project than given in this table."

Montana Wilderness Assoc., Letter
August 9, 1978

Response:

The text on p. 344 explains that the baseline projection figures in Table III-3 include estimates of employment for the re-regulation dam, by the Corps of Engineers.

Comment:

> "I take offense to the entire "Quality of Life and Social Values" section (p. 349). Besides the fact that the Impact of the mining development was not even considered what is presented is all hype, especially the water pollution paragraph. This section should be totally redone properly this time."

Brad Sheppard, Letter
August 1, 1978

Response:

As Mr. Sheppard admitted in his comments, "Quality of Life" is difficult to quantify. The idea of quality of life varies from individual to individual and is concerned with the human aspects and environments as well as natural aspects and environment. The range of individual preference can go from an urban environment with cultural opportunities and urban services (with corresponding urban congestion and problems) to an isolated area with few services. An earnest attempt was made to identify the quality of life in the Troy area by means of a survey conducted by T.A.P. and is contained in Appendix Q of Volume II of the Draft E.I.S. On the strengths of the response the authors consider the section on Quality of Life and Social Values to be a reasonable representation of the communities attitudes.

The format of the draft E.I.S. was established such that the area without mine development was considered first. The section that Mr. Sheppard referred to on page 349 was this section, and did not consider the mining development.

The "Quality of Life and Social Values" section considering the mining development begins on page 376 of Volume I-draft E.I.S.

Comment:

> "My second area of concern deals with the lack of an economic analysis regarding public services and increased county tax load.
>
> The fact that increased populations require more funds for the services that are provided than the revenue provided through taxation of the land and improvements of this new population. Therefore, the existing tax sources will find an increase tax load to support the newcomers."

Russ Hudson, Letter
July 24, 1978

Response:

It is true that depending on the settlement pattern of new employees in the county, some local government area could be required to provide services costing more than tax returns would pay for, at current rates. For county government services, it is pointed out that this is less likely except possibly in the short run; and indeed the project might result in reduced millage rates countywide.

Comment:

> "Appendix A; give a wage rate of $6.75 as hour for Electricians at the mine. The only Electricians wages I've ever heard mentioned were for 1418 dollars per hr. What's the scoop?"

Cesar Hernandez, Letter
August 8, 1978

Response:

The electricians at the mine will be employees of ASARCO Inc., and as such will be collecting numerous company benefits, such as paid vacations, health insurance, etc. that an electrician not working from an established company would not be receiving. Taking into consideration these benefits, the pay scale for the mine electricians is very equitable with wages received by contract electricians.

Comment:

> "Possibly, we though, tourism would fulfill our needs and still

we would retain the beauty and tranquillity of our surroundings. We were told that such had been accomplished in Leavenworth, Washington. As a beginning we established Troy's Museum and Visitors Center which has been growing and gives evidence of accomplishing some of our goals. Our area is being constantly admired for its beauty by those who stop and talk to us and they often admit they would like a home here now or in the future. Admittedly it is especially suitable for retired people and retired people usually have money and don't need jobs. Thus Troy's economic requirements could be met without sacrificing pure air and water and forested mountains."

Nola Sloan, Letter
August 8, 1978

Response:

Tourism, although it has the characteristic of being seasonal, does contribute to the Service sector of the economy without in general making demands on local government services. An area fortunate enough to attract only that part of the retirement-age group that has adequate income and no need for employment can indeed claim not to need basic industry. This report, however, was aimed only at trying to assess the impact of a proposed mining venture.

Comment:

"To recap some of my thinking - I sincerely believe someone truly missed their homework when they stated 300 men working - If they would be totally hones they would state - Beginning Crew 300 - with an average family of 3.3 people = 1000 people - To be absorbed into a realatively restricted area - For these 1000 - people there would be another 2,000 people move in (workers with families) to care for the needs of the first 1000 people -

Then lets Cap this by saying 900 men work in the mines and bring families = 4,000 people with approximately the same raise in services = 6,000 totaling 10,000 people + Now this doubles the total population of the Sanders County at present +

Where is your planning for all of these people?"

Beatrice Woessner, Letter
August 4, 1978

Response:

It is quite true that if different assumptions and different multipliers are used, the projected population impacts of such a project will come out much higher. The relationships between Basic and Derivative employment, and between employment and population used in this study were based on what has already occurred in the county in the past, and on the results of other studies of similar temporary influxes of construction workers. The phasing pattern showing how many workers would be involved in what years, was derived from estimates by the company that will be paying the wages and salaries. The proposed project will employ approximately 310 persons, for the life of the mine, not 900.

Comment:

> "On page 367 the EIS identifies a major problem; "Of all the local government entities in Lincoln County, it is likely the communities of Libby and Troy will experience the greatest expenditure impact with the least offsetting direct revenues." This important issue is not even addressed in the mitigation discussion."

Montana Department of
Community Affairs, Letter
August 8, 1978

Response:

The fact that the discussion on mitigation did not have an answer for the problems that face Troy and Libby reflects, in part, the fact that no mechanism like the Coal Tax exists (with the exception of the presently untested provisions of Section 84.401.105 of the RCM that provides for advance property tax collections for a county anticipating an adverse impact from an industrial development) in the state now to deal with the "front end costs" of communities impacted by mining developments other than coal.

Comment:

> "We were frustrated by the blithe generalities contained on pages 420 to 425 regarding mitigation of impacts. The discussion on these pages stopped short of providing a practical assessment of mitigation measures. For example, the discussion on page 421 regarding Troy's sewer and water systems leaves us with, "The community could accelerate efforts to obtain funding for improvements to the water system and construction of a centralized sewage system." How can we realistically assess the efficacy of the suggested mitigation measures unless the author follows up his suggestion and identifies such potential funding sources, the amounts of financial assistance available, and assesses the likelihood of Troy qualifying for this assistance?"

Montana Department of
Community Affairs, Letter
August 8, 1978

Response:

The Troy water system is in need of improvements. The community for and was an unsuccessful applicant for a HUD Community Development Block Grant Small Cities Program as pointed out by the Planning Division. This was a potential source of funds, but funding for water systems is limited at this time. Other possible sources are Farmer's Home Administration and Economic Development Administration Funding. Of these the one most commonly used is the Farmer's Home Administration which provides a maximum of a 50% grant and low interest loans for eligible water system projects.

Troy has applied for an EPA Step 1 Grant for a Wastewater Facility Plan. The State Department of Health is currently assessing the need for such a study and will make a determination in the near future. This is the most common source of funding for wastewater improvements and provides a 75% federal grant for eligible items.

Comment:

> "In describing the Troy water system the EIS includes information on capacity and distribution but does not discuss the condition of the system. I have enclosed a copy of a grant application submitted this May by the Town of Troy to the U.S. Department of Housing and Urban Development under the Community Development Block Grant Small Cities Program. (Troy was an unsuccessful applicant.) This information should be reflected in the discussion of the Troy water system on pages 269, 270, 351 and 384. According to our information the Troy water system has been ranked number one in the state by the Department of Health and Environmental Sciences in terms of its need for improvement."

Montana Department of
Community Affairs, Letter
August 9, 1978

Response:

The Planning Division is correct in its assessment of the condition of the Troy water system. The water system consists of an open intake structure with simple chlorination for treatment. Two wells supplement the open intake. The distribution lines are part wood and part steel.

The water system is in deteriorating condition and in immediate need of improvement. Some contamination of the system has been observed. The Troy community has tried to get assistance for these improvements, but to date no program of improvements has been approved.

Comment:

> "Page 251: Statement is incorrect. National forest lands are

available for mineral development and are presently under claim by Bear Creek/ASARCO."

Montana Wilderness Association,
Letter
August 9, 1978

Response:

National Forest lands are available for mineral development. The statement on page 251 that National Forest land will not be available for development was intended to imply residential or other non-mining industrial type development, as it occurs within the Land Capabilities section of the draft EIS. The sentence should more properly read "As shown in Figure II-19, only a limited amount of National Forest land has been included in the impact area since this land will not be available for residential or other non-mining industrial development."

Comment:

"The State Highway Department's upgrading of U. S. Highway #2 from Kalispell to the Idaho line is presently in the planning stage. In order to inform the Department of the town's needs, we must have definite advance word on routing of ore traffic, both the proposed truck route into town and the railroad's plan for a shipping/loading area."

Honorable A. E. Brown, Mayor of Troy
Letter
August 10, 1978

Response:

The proposed route for the ore concentrate haul trucks is discussed in Volume I-draft EIS, pages 390-393. Within the city of Troy the concentrate trucks would leave highway 2 at its intersection with Yaak Avenue and proceed along Yaak Avenue to the proposed railroad loading area, which at the present time, is planned for the area of an existing siding immediately adjacent to the Troy City Jail. Plans regarding the railroad loading facilities have not been finalized beyond the obtaining of a lease on the existing siding by ASARCO Inc.

Comment:

"In the section of public safety and welfare and social service (p.355), it is noted that "normal population growth" would require no addition law enforcement staff and one additional employee in the public welfare department. Does normal population growth include population increases associated iwht the ASARCO mine? Was there an increase in crime during Libby Dam construction? If so, can this be expected during construction of the mine?"

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

NO. Normal population growth in this section of the E.I.S. is the growth that would occur without the Troy Project and is used as a baseline forecast from which to evaluate the impact of the Troy Project.

Following are crime statistics for Libby and Lincoln County for seven major crimes (homicide, rape, aggravated assault, motor vehicle theft, burglary, robbery, and larceny theft).

YEAR	LIBBY Crime Rate (Per 100,000 Pop.)	LINCOLN CO. Crime Rate (Per 100,000 Pop.)
1969	6,528.6	3,328.5
1970	6,360.3	1,407.6
1971	5,945.4	1,568.0
1972	5,569.1	1,525.2
1973	7,862.2	2,819.3
1974	10,711.9	4,403.6
1975	10,553.1	3,957.6
1976	7,350.9	3,886.3
1977	8,924.8	4,555.8

The Libby area shows a significantly higher crime rate for Libby than for Lincoln County. Some of this is probably attributable to the Libby Dam Project. A portion of the higher crime rate is also due to the fact that Libby is the largest community in the area, and people in the area frequent Libby for entertainment.

As the population of the area increases as a result of the mining development, the number of crimes will also undoubtedly increase. A review of the crime statistics table reveals that the largest increase in crimes occurred after the completion of the construction phase of the Libby Dam Project. This would be expected to occur after the completion of any project that had resulted in the unemployment of a large number of people that had migrated to the area for employment at the project.

Comment:

> "There seems to be an assumption throughout the EIS that the ASARCO mine will mitigate many of the employment problems in Lincoln County: "If there is no mine development and the economic base remains as at present, buying power will very likely deteriorate in the future" (p. 349). This is based on the premise that timber production in the area "will become more finite as time goes on and with no substantial

> increase in economic base in the future, the economic opportunities must necessarily gradually diminish." Is there evidence currently that timber production is or will be decreasing? What and how long will the rate of decline be?"
>
> Jennifer O'Loughlin, Letter
> August 8, 1978

Response:

According to the Western Wood Products Association, timber production in Lincoln County declined from 337 million bd. ft. in 1968 to 178 million in 1975. In 1977, production was up to 240 million, which was still below the 1973 level of 265 million bd. ft. Future variations in production will be closely related to the U.S. Forest Service harvesting policies, which are subject to change from time to time.

Comment:

> "The impact of the Troy Project on the Lincoln County school system is not adequately explored. Table II-65 (p. 282) illustrates present and projected classroom capacity and enrollment in area schools. Interestingly, the information is limited to the past school year (1977-1978) and future school years. It would be beneficial to examine enrollment and classroom capacity from 1967 onward, thereby including the effects of Libby Dam construction. This is particularily important because the mill levies for Libby Troy are at or above the maximum allowed by law (p. 237). Is this a result of the need for increased social services during construction of the dam? If so, can the same type of impact on county finances be expected with the Troy Project?"
>
> Jennifer O'Loughlin, Letter
> August 8, 1978

Response:

School enrollment from 1967 to the present is as follows:

TROY SCHOOL DISTRICT

SCHOOL YEAR	ELEMENTARY	HIGH SCHOOL	TOTAL
1967-68	425	184	609
1968-69	416	207	623
1969-70	435	203	638
1970-71	431	218	649
1971-72	411	208	619

1972-73	387	213	600
1973-74	380	217	597
1974-75	387*	229	616
1975-76	387*	206	593
1976-77	382*	214	596
1977-78	407*	221	628

LIBBY SCHOOL DISTRICT

SCHOOL YEAR	ELEMENTARY	HIGH SCHOOL	TOTAL
1967-68	2236	892	3128
1968-69	2430	950	3380
1969-70	2393	972	3365
1970-71	2278	979	3257
1971-72	2214	998	3212
1972-73	2130	957	3087
1973-74	1936	931	2867
1974-75	2056*	949	3005
1975-76	2049*	965	3014
1976-77	1925*	983	2908
1977-78	1853*	965	2818

Table does not include ungraded students.

*Includes Kindergarten.

Data from: State Superintendent of Public Instruction.

Most cities and towns above 500 population in Montana have mill levies like Troy and Libby at or above the maximum of 65 mills. Thus, this is a statewide phenomenon. See pages 361-371 of the Draft EIS for a more extensive explanation of the impact of the Troy project on local government finances.

Comment:

> "A third problem in the data analysis is that sections labeled "quality of life and social values" address, in large part, economic rather than social concerns. It takes some time for people to be able to talk about their values with even the most skilled researchers; in time it becomes much easier for both to try to relate quality of life to income. But the assessment problems created by hurrying this process emerge clearly in the EIS and in the public meeting discussions. More time is needed for this process and also to address discrepancies between the author/researchers'

> views and those of the local residents."

Institure for Social Research, Letter
August 7, 1978

Response:

It is agreed that time to properly establish and state social values is a problem in the EIS process. As stated previously, an earnest attempt was made to identify the quality of life in the Troy area by means of a survey conducted by T.A.P. On the strengths of the responses the authors consider the section on Quality of Life and Social Values to be a reasonable representation of the communities attitudes. However, the authors realize that a gap between actuality and the description of actuality always exists. Since the time frame of the EIS is mandated by law, the authors had no control of the time in which to assess the social values of the area.

Comment:

> "A second inadequacy in the data analysis is that numerous projections are "based upon the present level of service," in which simple arithmetic multiplication is used to project a complicated relationship. If all the newcomers were people like the locals in the study area, and if adequate facilities and services were available upon their arrival, then one might say that X number of additional people will require one more deputy, doctor, etc. But research in other rural areas experiencing rapid industrialization shows that there is certain to be a serious lag between need and availablility of most services and housing which, coupled with the known characteristics of the construction population, will demand much more than is planned from the personnel and the budgets of such services as law enforcement and public health agencies. Similarly, the assessment of impact on welfare services does not take into account the history of other development sites where strikes and other work stoppages have occurred."

Institute for Social
Research, Letter
August 7, 1978

Response:

Two factors enter into the decision to use simple relationships in the analysis. First, the universe of data is such that small changes in numerical data can reflect large changes in rates, which means that any projection whether simple or complex is unstable. Second, in reviewing similar projections that have been done in the past in similar areas, no appreciable advantage of complex analyses over more straing forward and simple analyses has been observed. In fact, the degree of inaccuracy may be greater at times with a complex analysis than with a simple analysis. These two factors combined with the lesser effort required for the simpler analysis, and the time restraints required of the E.I.S., led to the decision to use the methods of analysis that were chosen.

Because of the complex nature of strikes and other work stoppages they are dificult to predict. Stoppages, particularly in the project that anticipates a non-union operation, would be very difficult to predict. It is reasoned that including work stoppages in the impact may be as inaccurate as excluding them, and consequently they have not been included.

Comment:

> "The operational phase, although longer, will usually have less impact because the workers plan to stay longer and fit into the community, and because the construction phase fostered community preparations for the ensuing one. By lumping the two phases together, this EIS underestimates and misprotrays social impact."

Institute for Social
Research, Letter
August 7, 1978

Response:

The section of Volume I-draft EIS referred to by Mr. Gold is a section on the "Quality of Live and Social Values" on Page 376. This section does discuss the differences between the development and operational phases of the project, and points out where these differences would occur. However, the author's judgment was that the cummulative effect on the Quality of Life and Social Values would be similar in character, and for this subjective section of the EIS could be treated together.

Comment:

> "I think it is important to know what effect the mine will have on the wilderness quality of the Cabinet Mountain Wilderness area and the proposed Scotchman's Wilderness area. This impact was not addressed in the draft EIS."

Kathy Johnson, Letter
August 9, 1978

Response:

It is not anticipated that there would be any direct impact to the quality of either of these areas with the possible exception of visual impact as discussed on page 393, Volume I-draft EIS.

Comment:

> "The EIS should have seriously considered the creation of a new village community at Little Joe to lessen the population impacts upon the other local communities."

Art Sheldon, Troy Public Meeting
July 24, 1978

Response:

The authors considered the possibility of discussing a new community as a mitigating measure in the draft EIS. However, it was felt that the concentration of a new community development in an area such as Little Joe, that is relatively undeveloped, was not favorable for reducing the potential for impact to the area. The location of new development in areas of existing concentrated development, such as the city of Troy, through planning and local ordinances, was considered in this instance to be much more favorable for reducing the potential for impacts associated with the increased population as a result of the mining project.

Comment:

> "Page 275. Use by heavily loaded freight trucks will require frequent upkeep of those public access routes utilized for hauling ore concentrates. Are such costs included in economic benefit/ cost to local counties?"

Montana Wilderness Association,
Letter
August 9, 1978

Response:

Yes, these costs are considered a part of the increased demand for public services in the draft EIS. A discussion of the impacts to the road systems is contained on pages 390-393, Volume Idraft EIS. The cost of maintaining the mine haul road would be the responsibility of ASARCO Inc.

Comment:

> "If we are expected to allow our quality of life to be degraded in order that ASARCO can profit, then we should be protected to the greatest extent possible by requesting that ASARCO comply with mitigating measures, outlined in the draft EIS on pages 405-425, in order to be granted an operating permit."

Kathy Johnson, Letter
August 1, 1978

Response:

The Hard Rock Law has limitations to the measures that can be required of the applicant as conditions to the granting of an operating permit. Mitigating measures presented in Volume I-draft EIS contain several measures that are beyond the scope of consideration under the provisions of the Hard Rock Act. To the extent that the law provides, the Department of State Lands would condition the operating permit, if granted, to provide the greatest degree of protection to the area's quality of life.

Comment:

> "A second major omission is consideration of impact on the local residents whose income would not be increased by construction and operation of the mine; e.g., the elderly,* other retirees, and those who are employed on relatively fixed incomes. This problem is dramatized in the statement beginning on page 377 that "Initially, with relatively high wages being paid the construction workers and the mine workers, there would be an increased ability of the local population on the whole to purchase goods and services." Accoridng to the most optimistic estimate (page 358) only 30 to 60 locals would be eligible for those initial, relatively high wages. It seems apparent then that most locals will have substantially less purchasing power in the competition for goods and services."
>
> *Although Lincoln County has a low median age, probably because of in-migration during the dam construction, the more rural parts of the county have a large number of retired persons.

Institute for Social
Research, Letter
August 7, 1978

Response:

According to the 1970 Census, the Troy census division has 8.41% of the population 65 years old and older (207 out of 2460 residents), Lincoln County has 5.47% of the population 65 years old and older (988 out of the 18,068 residents.), and the State of Montana has 9.90% of the population 65 years old and older. (68,736 out of 694,409 residents.) These figures show that Troy and Lincoln County in fact have a lower proportion of elderly people than does the rest of the State.

Also the medium age for Lincoln County residents was 25.1 years as compared to 27.1 years for Montana, although this may be accounted for by the influx of workers for the Libby Dam project.

These figures are not intended to imply that although the percentage is not high the problems of the elderly should be ignored. In fact this is the category or resident that will probably be most adversely affected by the Troy Project because of their fixed incomes. Some of the mitigating factors that would beneficial to elderly people would be better medical facilities and improvement of social services.

Comment:

> "ASARCO's plan to hire local people is commendable, however, I am skeptical. I do not see any evidence of local people being contacted about their desire to work in this mine. What I fear will happen is a large influx of people after announcement of the development of this ore body. These people will have been living in the area only months to weeks before employment begins, and ASARCO will have no way of knowing whether they are local people or not. I would suggest that ASARCO address this problem in the final EIS, and present a plan to alleviate the problem. For example, ASARCO could begin contacting local employment agencies now and have any local person who is interested in mine employment sign up now, before the influx of outsiders. I also feel a job training program should be initiated."
>
> Brad Sheppard, Letter
> August 1, 1978

Response:

ASARCO officials report a sizeable backlog of applications from Lincoln County residents already, for jobs in construction and mining. The company indicated more confidence that the authors of the EIS that a high proportion of the jobs could be filled from the local labor supply.

Comment:

> "The exact information needed to effectively consider the alternatives is lacking in this section. I would like to see exactly what we living in the Lincoln County area and Montanans can expect monetarily from ASARCO if this project goes in. I believe it should be in the form of a legal binding contract between ASARCO and Lincoln County, and ASARCO and the state of Montana."
>
> Brad Sheppard, Letter
> August 1, 1978

Response:

There is currently no authority in the state to force a company to contract with the county for such unspecified monetary benefits.

Comment:

> "The discussion of health services would be more consistent if

> the response from item 19d in the most recent questionnaire which says that 85% of the respondents feel health facilities are inadequate were quoted at the bottom of page 287 rather than the 8% figure presented from the Sootsman study.

Institute for Social
Research, Letter
August 7, 1978

Response:

The eight percent figure quoted on page 287, Volume I-draft was a typographical error and should have read eighty five percent. The original text prepared by the consultant and submitted to the Department of State Lands contained the eight percent figure. However, the figure was referenced to the T.A.P. study performed for the EIS which contained the 85 percent figure.

Comment:

> "Page 70. What is the county's present capability to handle solid waste and what is the availability of and necessity for additional landfill sites? Will ASARCO use county facilities or their own solid waste disposal?"
>
> "Page 280. Will increase in solid waste pickup be increasing and what are the inherent cost in the form of increased maintenance and additional containers?"

Montana Wilderness Association,
Letter
August 9, 1978

Response:

A discussion of the present solid waste disposal program for Lincoln County and the impacts to it should the ASARCO Inc. mining project be granted approval can be found on pages 279-280, and 385-386, Volume I-draft EIS. The ASARCO Troy Project anticipates use of the existing county landfill site for disposal of solid waste.

Comment:

> "I think that the statement greatly underestimates the increase in demands on services that this will bring."

Jean Guidry, Letter
August 7, 1978

Response:

The demand for services was estimated using levels of service existing in the area and consistent with the demand for services in other areas. The attempt was made to make the estimates as realistic as possible.

Comment:

> "Although ASARCO has made some vague promises to provide housing for managment employees (p. 30), it is obvious that the local economy will have to generate most of the housing needed. The ability of the area to do so is never made clear, and discussion of housing needs is consistently vague: "Increased communication between agencies funding current housing programs and the citizens of the county would possibly improve the anticipated housing impact" (p. 421). It is essential to attempt to project future housing needs in order to avoid the type of pollution evident at South Libby Flats."

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

Housing needs for the Troy Project are discussed on page 379 of the draft EIS and are divided into needs for (a) the Troy Census Division, (b) the Bull Lake Area, and (c) the Libby Census Division. On page 381, the draft EIS states that a planned subdivision of 60 to 70 one-acre lots would be sufficient to house the projected permanent population in the Troy Census Division. On page 381, the draft EIS states that the four existing trailer parks in the area could be expanded to meet some of the housing needs in the Bull Lake Area. On page 383, the draft EIS states that the estimated housing needs for the Libby area are well within the land capabilities of the area, and that due to existing services and utilities the additional units could be accommodated with little impact.

Although the housing analysis does not account for all of the project dwelling units anticipated with development of the Troy Project, sufficient analysis has been done to determine that accommodations for most of the housing needs can be met with expansion of existing developed areas. Additional development not foreseen at this time should be able to assimilate the remainder of the housing needs.

While the housing analysis does not account for every dwelling unit that would be needed because of unkown future housing developments that may occur, the number, type and location of dwelling unit needs has been estabilished and it is felt that the discussion of housing needs is adequate.

Comment:

> "The statement repeatedly refers to mitigation rather than prevention of various impacts. The term mitigation is apparently used throughout to mean both preventing and repairing damage. This is akin to using the same term for preventive health care and surgical amputation. A more bizarre use of the term mitigation appears in an extraordinary statement on page 420, paragraph 3, in which locals' efforts to control their lives are made to sound dangerous compared to the relatively benign intrusion of the planned development."

Institute for Social
Research, Letter
August 7, 1978

Response:

The authors believe that the paragraph was mis-read or mis-interpreted. The intent was that interference by the ASARCO Mining Company was one level of intrusion, and that additional interference by non-local organizations and agencies setting standards established by others could be more damaging to the quality of life of the local people by creating additional intrusion.

Comment:

> "Comparing Lincoln County to Rosebud and Big Horn Counties is misleading for several reaons. The only similarity is large scale mining development in an area with sparse population. The development of coal resources was anticipated by the legislature and the taxation of coal is designed to handle many of the costs associated with its development. This is not the case with copper mining."
>
> "In the first place the proper tax based on gross proceeds of coal is much higher than that of metal mines. Coal is taxed at 45 percent of gross proceeds for strip mined coal and 33 1/3 percent for coal mined underground. The taxable percentage for metal mines is only 3 percent. In other words, gross proceeds of coal are taxed at 15 times those of copper."
>
> "The coal severance tax was designed to channel funds to impact areas while all receipts from the metalliferous mines tax go into the state general fund. Counties with coal mines originally received 4 percent of the severance tax. This rate has been lowered to 1.5 percent of the severance tax collected from within the county. In addition there are coal area highway impact funds and the grants to impact areas administered by the Coal Board. Millions of coal severance tax dollars have been returned to these impact areas. No such relief is available for Lincoln County and the associated impacts from the Troy ASARCO mine."

> Since gross proceeds of the copper industry is taxed at a much lower rate than coal and since there is no analogus state sharing of the metalliferous metal mines tax, it is unrealistic to compare Lincoln County to Rosebud and Big Horn Counties. It may be possible that mill levies will decrease once the project has reached full scale production. However, it is doubtful because the basis for this assertion tends to overstate the potential for revenues by comparing revenues of coal impacted areas to potential revenues from the proposed Troy ASARCO mine. Unfortunately for Lincoln County, copper is not the revenue source to the county that coal is to Rosebud and Big Horn Counties."
>
> "Given these facts, we feel that it would be advisable for you to temper the predictions made in the revenue section of the statement."

Montana Department of
Revenue, Letter
July 14, 1978

Response:

There was no attempt to compare Lincoln County with Big Horn and Rosebud counties, and no suggestion of such an attempt except for the mention on p. 367, where a sentence was included to show that county mill levies in an area affected by major mining development have in fact decreased.

The conclusion that mill levies could decrease in Lincoln County is based on the Department of Community Affair's projection of ASARCO's impact on the taxable valuation of the county. A 40 percent increase is estimated, which suggests the possibility of a decrease in mill levies. It is true that taxable valuation figures in the two eastern counties have grown, not 40 percent but several hundred percent; but populations in some of their communities have also grown far more than the projected growth for Lincoln County under the impact of the ASARCO project.

The term used on p. 366 Volume I-draft EIS is "plausible", in describing the chances of a mill-levy decrease. The reader may want to substitute the word "possible".

It is quite true that gross proceeds from coal are taxed at a rate 15 times those of copper. But since copper is valued at about 70¢ per pound, and the contract sales price of coal reported by the coal companies ranged from $3 to $6 per ton, it is apparent that copper provides some 15 times more taxable valuation per ton, than does coal.

Comment:

> "Mindful of the limited resources of the responsible agencies to do this job and of their public explanations of the limits of their mandate, no attempt has been made to address some important

social impact issues that are not covered in this EIS, for example, the cumulative effects of a number of proposed developments on this rural area and the long range cost-benefit questions."

Institute for Social
Research, Letter
August 7, 1978

Response:

See Page 116, Volume III-final EIS.

Comment:

"The principal inadequacy in analyzing the data seems to be caused by a lack of knowledge about research findings in rural areas where similar development has occurred."

Institute for Social
Research, Letter
August 7, 1978

Response:

The closest impact that could be compared to the Troy Project is the Libby Dam Project. The impacts of this project were reviewed and used as a comparison for the Troy Project. In addition, the Anti Ballistic Missile Project near Conrad which failed to materialize was used as a base for comparing project impact with baseline data projections. It was felt that these two projects occurring in Montana in rural areas would provide analogous situations whereas generalized research or research in projects in other areas may not be applicable.

Comment:

"On Page 366 the footnote states "the Troy school district presently received $291,000 per student under this program for other Federal impact projects ..." This is probably a typographical error because at this rate the Troy school district would receive over $180 million."

Montana Department of
Revenue, Letter
July 14, 1978

Response:

The correct figure should have read $291.00 per student.

Comment:

> "ASARCO should construct a parking lot and provide transportation for each shift, to eliminate the need for 600+ cars to travel daily up and down Mt. Vernon."
>
> Laurie Blazich, Letter
> August 10, 1978

Response:

See page 142, Chapter II, Volume III-final EIS.

Comment:

> "I think that the Statement greatly underestimates the increase in demands on services that this project will bring. Rather than bring in many people for a relatively few years, the life of the mine could be lengthened, thereby bringing in fewer people over a longer period of time. This is a possibility not addressed in the DEIS. It may not be very profitable for the mining corporation, but remember that the state is concerned with the welfare of the people, not of the corporation."
>
> Jean Guidry, Letter
> August 7, 1978

Response:

Pages 418 and 149, Volume I-draft EIS contain a discussion illustrating how employment and population might be changed if the level of production were varied. Two scenarios are presented, (1) extension of the mine life to 19 years (considered to be the maximum economic extension) with a resultant reduction in mine employment of 15 percent, and (2) a doubling of the mine life.

Extension of the mine life is also discussed on page 441, Volume I-draft EIS, and in Appendix T, Volume II-draft EIS.

Comment:

> "The major flaw in the analysis is the mention of the fact that additional expenditures should be covered by the increase in the tax base and then mentioning the possibility of decreased mill levies by comparing Lincoln County to Rosebud and Big Horn Counties. In the long run it is possible that additional revenues may be sufficient to cover the expenditures necessitated by development of the Troy ASARCO Project. However, in the short run this is not the case because there is a substantial lag between the time first impact actually occurs and the time when

> the new construction becomes part of the local tax base.
>
> As mentioned in the statement, during the construction period there will be a substantial in-migration to the impact area. These construction workers will generally live in temporary housing which will contribute little to the tax base. However, these same workers will be demanding services from local government units. There will not be any revenues from the property tax based on the gross proceeds from the mine and the mine facilities will be taxed only on the portion of the facility completed by assessment day. There will necessarily be increasing expenditures to meet the demands of the workers without accompanying increase in taxable value. The only way to raise the needed monies during construction is to raise the mill levies thereby adversely impacting local property owners."

Montana Department of
Revenue, Letter
July 14, 1978

Response:

In the short run, there is a real possibility that demand for public services could outstrip new revenue associated with the mine development. This possibility was partially addressed on p. 364, Volume I-draft EIS. The conclusion was that after 1981 -- with construction complete and full production assumed -- it is likely the increase in the tax base would allow sufficient tax revenue to offset expenditures without a tax burden greater than that which now exists. The analysis applies only to the county.

In fairness to the reviewer, however, it must be admitted that on p. 366, Volume I-draft EIS, the statement says only that revenues should exceed expenditures. It should be pointed out that this is a long-run outcome, and may not be true initially.

The authors do not agree that the only way to raise needed public-expenditure funds during construction is through mill levy increases. Section 84.41.105 of the RCM provides for advance property tax collections for a county anticipating an adverse impact from an industrial development; although the regulations defining what constitutes "adverse impact" have yet to be formulated. The availability of this option is discussed briefly on p. 362, Volume I-draft EIS.

Comment:

> "The land use inventory (fig. II-20) seems incomplete. Callows Island should be shown as residential; other existing or planned subdivisions were not shown on this map."

Montana Department of
Natural Resources and
Conservation, Letter
August 10, 1978

Response:

Callows Island (Angel Island) should have appeared on the mapping as residential. A review of the recently released (September 12, 1978) Department of Natural Resources and Conservation draft EIS for the proposed Northern Lights Inc. transmission line, which contained a land use map representative of the most up to date inventory information, does not indicate the presence of other existing or planned subdivisions other than those considered in the ASARCO draft EIS land use discussion. The information regarding land use mapping used in the ASARCO draft EIS was provided by the Lincoln County Planning Board, and represented the latest land use mapping effort at the time of the printing of the draft EIS.

Comment:

> "Although illustrated at Table II-22, the text fails to present nor evaluate the highly developable Bear Creek (Kennecott Copper Corp) properties in Bull River valley. You have indicated 40% of the mine related population influx could be expected to reside in the vicinity of Bull Lake, yet fail to go further and evaluating the potential future for this approximately 1900 acres. As Bear Creek Mining has somewhat recently refused to discuss either market value sale, or consider the conservation easement programs, the relationship to land speculation or company related development of these key private lands surfaces as a significant issue."

Montana Wilderness Association,
Letter
August 9, 1978

Response:

The reviewer has identifed the primary variable to the assessment of additional development potential in the Bull Lake area, the key private lands surfaces. Depending upon the future plans of private surface land owners regarding use of their lands for development, the potential impacts caused by that development may change. A portion of the 1900 acres owned by Bear Creek Mining has questionable potential for development because of high levels of ground water. This was the primary reason that a preliminary plan to locate the ASARCO milling facilities on this property were abandoned. Although not brought out in the EIS, it is highly probable that a significant portion of the 1900 acres may be involved in a land trade with St. Regis to aid in obtaining the St. Regis owned property that currently is proposed for development of the tailing impoundment.

Comment:

> "The EIS failed to address the problems of crime and juvenile

delinquency which the county tax payers must sustain"

Rick Johnson, Letter
August 9, 1978

Response:

Although the EIS does not identify separately the increase in the burden upon county taxpayers as a result of increased juvenile delinquency and crime as a result of an increase in population related to the mining project, the EIS does discuss the government revenue and expenditure impacts of the project on pages 361-370, Volume I-draft EIS, and particularily the need for additional personnel at the Lincoln County Sheriff's Office, Troy Police Department, and the Libby City Police Department. In addition, the draft EIS projects the need for three additional social workers as a result of the mining project (page 389, Volume I-draft EIS).

Comment:

> "In the EIS it is said that there is a lot of privately owned land that could be developed without seeming to give consideration to the idea that maybe they don't want to develop this land. The school information for Noxon is outdated."

M.H. Daniels, Letter
August 9, 1978

Response:

The draft EIS analysis of privately owned lands in the Bull Lake area concluded that, based upon a consideration of slope, flood plain, and soils data, there was a total of 7,510 acreas of land considered available for development within the Bull Lake impact area. The analysis in no way intended to indicate that the land was "available for development" in terms of its present owners wishes. Indeed, the future attitude of the private land owner as regards development of the private lands will determine the potential for much of the land use impacts.

The enrollment data for the Noxon school system was current at the time the draft EIS was prepared. Official enrollment data for the 1978-1979 school year is not yet available and should be released sometime in October, 1978.

Comment:

> "The Libby school system does not have the capacity the EIS reported according to the school superintendent. I also doubt the Troy schools have the capacity for many more pupils."

Rick Johnson, Letter
August 9, 1978

Response:

See the revised school capacity tables on pages 78 and 79, Volume III-final EIS.

Comment:

> "The discussions of "quality of life" on pages 264 and 376-379 should address specifically such transient groups as tourists and visiting recreationists, hunters, and fishermen."

Montana Department of
Natural Resources and
Conservation, Letter
August 10, 1978

Response:

The discussions of quality of life that are contained in the draft EIS are designed primarily to evaluate the perception of the quality of life by the local residents and the impacts to that perception that the proposed mining project might bring. It can safely be assumed that many of the same features of the existing quality of life that the local residents consider positive are also considered positive by those transient groups such as tourists, and visiting recreationists, hunters, and fishermen. A reduction in the existing quality of life as a result of the mining project, as projected in the draft EIS, would lessen the attractiveness of the area to these transient groups.

Comment:

> "No mention was made of pre- or on-the-job training programs which would assure the area that local labor would indeed be used."

Rick Johnson, Letter
August 9, 1978

Response:

Page 29, Volume I-draft EIS states that "Following development and construction a limited production period of three to four months would be required for beginning plant operations, for post-mine development and for employee training." ASARCO Inc. has indicated that an on the job training program would be part of the normal operating procedure for the mine. Because of the similarity of the mine work to that involving any large equipment, it would be fairly easy to train new employees having a familiarity with load-haul-dump equipment. Although an on the job training program would be part of the mining program for employees, it should not be assumed that this would assure the area that local labor would be used. The availability of local labor, as well as the attitudes of potential workers towards underground work would determine the actual amount of local labor hired for the mining project.

D. Archeological and Historic Sites

1. Summary

An archeological survey by the Corps of Engineers along the Kootenai River for the Libby Dam Project provided ethnographic information on the native people of the area and their movements. A study of the Troy Project area was conducted in 1975 and included in the Stearns-Roger Report on the Troy Project. In 1976 the Kootenai National Forest in their land use planning work conducted a stratified survey based on probability of occurrence covering the project area. A site-specific survey was done in August 1978 by Kootenai National Forest archeological personnel covering the mill site utility and road corridor and tailings impoundment area (Vol. III-final EIS, Appendix I).

The studies and surveys of the area did not find any archeological or historic sites. A large portion of the area proposed for development has been heavily disturbed by logging and other human activity. The potential for an undiscovered surface site in the tailings impoundment area is low. There is a possibility of an undiscovered subsurface site within the tailings impoundment area.

2. Public Comment and Response

Comment:

> "It is not evident from the statements in the report that all of the lands to be impacted by the project actually were surveyed for possible sites. Establishing density patterns for planning is fine until it gets right down to impacting the area. At that time it is necessary to do a methodical survey of land involved to avoid the loss of irreplaceable cultural resources."
>
> "The statement that 'There are no known historic sites within the area...' seems to indicate no survey was done with regard to identifying or assessing potential historic sites. If this is true, a historical survey should be done before development begins."

Historical Research Associates
Letter
July 20, 1978

Response:

In addition to the survey of lands within the permit boundary conducted by Dale E. Fredlund in 1975, a site-specific survey of the proposed mine site, mill site, road right-of-way, utility corridor, and tailing impoundment area was conducted in August, 1978, by a team of Kootenai National Forest archeology personnel. Results of that survey are contained in Appendix I, Volume III-final EIS.

The survey conducted in 1975 by Dale E. Fredlund was designed to identify and assess potential historic sites. The statement in the draft EIS that "There are no known historic sites within the area" is a result of that survey.

Comment:

> "We recommend a comprehensive site-specific survey be performed before any ground disturbance activities begin. Results of such a survey and documentation of compliance with Executive Order 11593 and 36 CFR 800 should be included in the final document."

U.S. Department of the Interior
Letter
September 5, 1978

Response:

A site-specific survey of the area proposed for development of the mine and related facilities was conducted in August of 1978. A copy of the report of findings is included in Appendix I.

Comment:

> "I would caution that previous disturbance in the area created a difficult situation. It is possible, however, that undisturbed cultural deposits remain in the flood plain area. I would recommend that the tailing pond area be tested to determine if subsurface deposits exist."

Montana Historical Society
State Historic Preservation
Officer, Letter
August 11, 1978

Response:

The authors agree that it is possible that undisturbed cultural deposits remain in the area proposed for the tailing impoundment. A recommendation for testing in this area, with an evaluation by a qualified archeologist, is contained in Volume III-final EIS.

E. Recreation Facilities and Activities

Recreation facilities and activities in the Libby-Troy-Bull River Valley area are primarily outdoor oriented. Locan existing urban recreation facilities include parks, play areas, and facilities for organized sports. The mountainous terrain with its associated streams, lakes, forested cover, and big game animals contribute to this outdoor orientation both summer and winter.

Dispersed recreation is the primary form of recreation that takes place in the vicinity of the proposed mine-mill-tailings impoundment area. Activities included in this type of recreation include hunting, fishing, hiking, berry picking, driving for pleasure and gathering forest products. There are some undeveloped campsites in the area where people camp. There are three developed Forest Service campsites nearby, two on Bull Lake and one on Spar Lake (Figure II-7, Volume I-draft EIS). The main activities at these campgrounds are water related; boating, swimming, water skiing and fishing. A picnic ground has been developed in conjunction with the Ross Creek cedar grove.

An inventory of the recreational facilities available to residents of Troy and Libby was conducted as part of the draft EIS studies. Basically, it was determined that each city has a number of recreational facilities for their residents to use. A Discussion of these facilities is contained on pages 293-294, Volume I-draft EIS.

The four Forest Service developed recreation sites in the project area would experience increased use as a result of the proposed mining development. The additional use would result in accelerated wear and increased maintenance and repair costs and some overcrowding at times. Dispersed recreation areas would also receive increased use as a result of the additional people in the area. These areas would be able to accommodate the additional use without a significant reduction of the recreation experience.

If additional growth in the Bull Lake area is clustered, additional recreational areas could be provided by developers in conjunction with subdivision requirements.

The existing recreation facilities maintained by the Town of Troy are generally in need of repair. These facilities have the capacity to serve the projected impact population.

A Bureau of Outdoor Recreation grant for improvement of the existing athletic field and recreation facilities located near the W. F. Morrison Elementary School, was recently approved.

The Libby area has a number of neighborhood parks sufficient to serve the recreation needs of the impact population. Plans are underway to construct a new municipal swimming pool. The combined public and private recreation facilities provide a higher level of service than is found in most communities of this size.

F. Visual Resource

The rating used to rate viewing significance in the draft EIS was developed by the USFS and used two major types of criteria, scenic variety and people's concern for scenic quality. Pages 294-296, Volume I-draft discuss the rating program for viewing significance and Figure II-29 presents the viewing significance mapping conducted for the mining project area.

The majority of the proposed mining development is within a moderate Viewing Significance Zone as seen from Highway 202. The impact upon the area viewed from Highway 202, Bull Lake, county roads, the Cabinet Wilderness area and the Scotchman Peak Wilderness Study area would be slight, with the exception of the proposed tailing impoundment. Because of the proximity of the tailing impoundment to Highway 202, the potential for a high visual impact would exist. The impoundment area is sheltered from Highway 202 by a natural topographic feature and a screen of trees. However, after several years of operation, the impoundment area would become a prominent landscape feature and highly visible because of its size and height.

As viewed from the mine access road the tailing pipeline and transmission line would present a highly visible aesthetic impact. The mine and mill site would not be highly visible from the mine access road until the viewer was very near the proposed facilities.

Visual impacts associated with the proposed transmission line and suggested mitigation as prepared by the Department of Natural Resources and Conservation, Energy Planning Division are contained in Appendix V, Volume I-draft EIS. The impacts identified for that section of transmission line proposed to parallel the mine access road can be regarded as equally applicable to the proposed tailing pipeline.

G. Other

1. Public Awareness of the Project

A number of comments were received from the general public in the form of letters and at the public meetings, indicating a lack, on the part of the agencies involved in preparing the EIS, of public contact and information to inform the public that an EIS was being prepared, or that an EIS was available for public comments prior to the EIS public meetings.

Response:

A news release was issued by the Department of State Lands and the Kootenai National Forest on June 26, 1978, announcing the availability of the draft EIS, including the dates and times of the EIS public meetings. The release was hand delivered to all the major news sources, including the Associated Press, Lee Newspapers, Great Falls Tribune, United Press International, and the Intermountain Network News, as well as a copy sent directly to the Western News, the Libby Paper. Notice of the EIS and the public meetings appeared in the Western News on June 28, 1978, as well as in a large front page story in the Missoulian on the same date. Notice of the public meetings occurred again on July 20, 1978, in the Sanders County Ledger, and on July 24, 1978, on radio station KLCB (the Libby radio station), the Missoulian, and on KCFW, the Kalispell television station. In addition, the draft EIS cover letter contained a schedule for the public meetings. Two private individuals, Mr. Bill Martin, President of the Cabinet Resource Group based in Libby, and Mr. Mike Comola (formerly of Noxon), President of the Montana Wilderness Association, and coordinator for the Northwest Citizens for Wilderness also engaged in a personal letter writing campaign to alert the citizens of the area to the availability of the EIS and the public meeting schedule. Every effort was made to inform the public as to the availability of the document and the scheduling of the public meetings for the draft EIS.

Since the beginning of the environmental impact statement in 1976, press coverage of the impact statement process has occurred with regularity in the project area, including a complete printing in the Western News of the operating plan for the proposed ASARCO project. In addition, DOWN TO EARTH, a publication of the Environmental Information Center based in Helena, contained articles discussing the proposed project and the EIS on three different occasions, December, 1976, June-July, 1977, and May, 1978. Other efforts to inform the public regarding the EIS for the project included letters from the Kootenai National Forest notifying all interested parties that an EIS was being prepared for the project, a growth workshop meeting held in Troy and sponsored by the Environmental Information Center at which the ASARCO project and EIS were discussed, and a close working relationship that was maintained with the Cabinet Resource Group throughout the entire EIS process by the Department of State Lands. The Cabinet Resource Group, through a periodic newsletter, presented updates on the EIS process to approximately 200 interested persons during the past two years. In addition, departmental contact with the Northwest Citizens for Wilderness Mining, Inc., based in Noxon, occurred during the EIS process. ASARCO, as well, attempted to inform the public of the EIS being compiled with formal presentations to several local clubs and organizations in the project area. In consideration of the effort that the Department of State Lands, Kootenai National Forest, and private interest groups have made to keep the public informed on the project and EIS during the past two years, the public was given an adequate opportunity to become informed.

Regarding the EIS and public awareness, it is important to consider the life style of many of the residents of the Troy-Noxon area. For those individuals who have chosen to live isolated from the daily events around them, and for whom the impact of such a project may be substantial, it is indeed a problem to insure for their input into the EIS comment process.

2. Comment Period for the EIS

Many comments were received from reviewers of the EIS regarding the comment period provided for review of the document. Most indicated that the period for comment (45 days) was inadequate and requested an extension to provide 60-90 days for public review of the EIS. Cited as reasons were (1) the size of the document, (2) other personal commitments during the period that prevented a timely review, and (3) not receiving the document until a late date.

Response:

The comment time period provided for an EIS is determined by rules and regulations officially adopted pursuant to the Montana Environmental Policy Act. All state agencies have adopted similar regulations. These rules allow for a 30-to-45 day maximum initial comment period for the draft EISs, and one extension of comment time not to exceed 15 days upon request. The department received several requests for the extension provided, and extended the initial comment period 15 days, ending August 10, 1978, at midnight. The department, therefore, could not grant additional time for comment without violating the established rules and regulations.

The department did, however, because of public interest in additional comment time, request that ASARCO extend the comment period beyond the time period allowed in the rules and regulations. ASARCO denied the request. ASARCO did, however, indicate a willingness to consider comments received after the August 10, 1978 deadline for inclusion in the final EIS on a case-by-case basis.

It is important to point out that at the time ASARCO filed an application for the Troy Project with the Department of State Lands, the Hard Rock Law provided only 60 days following the receipt of a complete application for permit action to occur, including environmental review and comments. The present Hard Rock Law provides a maximum 425-day period for the analysis, comment, and permit action. The ASARCO Troy Project EIS, through a cooperative contract agreement between the Department of State Lands and ASARCO, is providing approximately 700 days for environmental analysis, public comment, and permit action.

The Department of State Lands and Kootenai National Forest are satisfied that adequate time has been allowed for comment on the draft EIS, and that the comments received prior to the comment deadline have indicated an in-depth review of the document by the readers.

3. Montana Environmental Policy Act and the National Environmental Policy Act.

Comment:

> "Several agencies will use this document for decisions regarding public interest. Nowhere does the EIS mention public interest or need. These agencies require a determination of public interest before issuing their various permits. In addition MEPA was designed to protect the environment and quality of life for the citizens of Montana. How can the EIS, the only research conducted under MEPA, satisfy that guarantee if the project is not found to be or not to be in the public interest."

Rick Johnson, Letter
July 31, 1978

Response:

All regulatory agencies of the state have statutory limits and requirements on their activities. Generally, their actions on permits are based on those statutory conditions, not on the determination of public interest. In essence, the rules and standards promulgated under these various regulatory acts define the public interest.

An exception is found in the Montana Major Facilities Siting Act which is the regulatory act for the proposed 115 KV transmission line associated with the ASARCO Troy Project. A determination of "need" although not necessarily public need, is required before permitting of the authority can occur. A discussion of the need for the proposed transmission line is presented in the draft EIS recently released on September 12, 1978 by the Department of Natural Resources and Conservation.

Comment:

> "Firstly, I disagree with your assumption that the Hard Rock Law takes precedence over MEPA. While this may be true under the legal theory of specific over general, it is also true that the intent of MEPA is to protect the environment, wildlife, and human population of this state. Also, the Montana Constitution states that the State and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations, that the legislature shall provide for the administration and enforcement of this, and that the legislature shall provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources.
>
> To not consider displacement and destruction of wildlife, the overall negative social and economical impact this project will have on our community, and the degradation of recreational opportunities, as shown by your evaluation, seems to me to be in direct conflict with the intent of MEPA and the Montana Constitution. Your duty as the department which issues the operating permit in this project is to insist that our environment and quality of life are protected."

Kathy Johnson, Letter
August 1, 1978

Response:

The Department of State Lands as an agency of the State of Montana, acting pursuant to laws passed by the Montana Legislature must be governed by such state law as interpreted by the Montana Supreme Court. The Montana Supreme Court in Montana Wilderness Association et al v. Board of Health et al and Beaver Creek South, Inc. 559 P2d 559 (1976) held that the Montana Environmental Policy Act is not regulatory in nature. The court withdrew an earlier opinion which held that MEPA authorized an agency to take into consideration environmental factors other than those specifically contained in the permitting legislation.

ASARCO has applied for a permit under the Hard Rock Act. The Department is mandated to issue the permit unless it is demonstrated that reclamation cannot be accomplished or that air and water quality standards will be violated. These are the only grounds the Department may use in denying a permit.

Although MEPA requires that the impact on wildlife and then overall social and economic impact on the community be brought to the attention of the decision-maker and the public, it does not authorize denial of the application on these grounds. The Legislature could certainly make such a provision, but it has not done so.

Comment:

> "The Troy Project EIS fails to meet the requirements of even 'full environmental disclosure' because of its surprisingly blatant refusal to consider alternatives to power from the Northern Lights run-of-the-river dam. Obviously, it was impossible to discuss the impacts of the dam in this EIS because of time limitations. However, the need for power from this source alone went unquestioned, with no discussion of feasible alternatives (I assume the mention of diesel generators was facetious, considering the size of the ASARCO mining project). There was no mention of the possibility of using power from the Libby Dam or the re-reg dam. In other words, agency approval of the Troy Project would mean automatic approval of the run-of-the-river dam, which seems a clear violation of federal if not state law."
>
> Jennifer O'Loughlin, Letter
> August 8, 1978

Response:

The draft EIS for the ASARCO Troy Project did not consider alternatives to power from the Northern Lights run-of-the-river dam because the power for the mining project is not proposed to originate from the Kootenai Falls dam project, but rather from the Bonneville Power Administration. The mining project is not dependent upon the Kootenai Falls dam as a power source and would not be affected should the dam not be built. The authors suggest that anyone interested in a more thorough discussion of the alternative power sources for the proposed 115 kilovolt transmission line should obtain a copy of the recently released draft EIS for the transmission line by the Montana Department of Natural Resources and Conservation.

Comment:

> "Because this statement will serve in large part as the review basis for ASARCO's construction permit request to the Depart-

> ment of Natural Resources, and because the Board of Health must require that high water quality be maintained unless a change is justifiable as a result of necessary economic or social development, there should be a section in this EIS on whether the mine is economically or social justifiable."

Cesar Hernandez, Letter
August 8, 1978

Response:

The authors disagree. It is the purpose of an EIS to determine the significance and magnitude of the various impacts associated with a proposed project, and not to present an opinion as to whether these impacts justify a project being approved. The interpretation of necessary economic or social change is the responsibility of the permitting agency using the EIS as an aid in making that determination.

Comment:

> "In chapter 4, section A, of the DEIS, the listing of laws and regulations; MEPA is not even mentioned."

Cabinet Resource Group, Letter
August 19, 1978

Response:

Section A, Chapter 4 of the draft EIS, Volume I presents a listing of those significant state laws for mitigating impacts. The Montana Environmental Policy Act grants no authority to state agencies to enforce mitigation measures or require alternative operating plans as considered in the Environmental Impact Statement.

Comment:

> "I would also like to suggest that a paragraph in the preface of the final EIS be devoted to describing the prupose or function of the EIS under the law."

Laurie Blazick, Letter
August 10, 1978

Response:

The following is a direct quote from the Montana Environmental Policy Act; '69-6502. Purpose of act. The purpose of this act is to declare a state policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the state, and to establish an environmental quality council.' The function of an EIS as regards the decision making responsibilities of state agencies is discussed in the previous questions regarding MEPA.

4. Potential Mineral Development

There are estimated to be in excess of 7,000 mining claims recorded in northwestern Montana. These claims range from single, isolated claims to blocks of claims in excess of 100. Ownership of claims varies from individuals to large corporations. Some individuals own large blocks of claims, and some large corporations own single claims. The filing and holding of claims is highly speculative and does not mean that they will eventually be developed into a mine.

Exploration work to determine quality and quantity of the mineral has been done on many of these claims. Data as a result of this exploration is regarded as highly confidential by the claim's owners and is not made available to the public or state and federal agencies. A certain amount of this information becomes available to state and federal agencies and is public record only when notice is given to develop a mine or an application for patent on a mining property is filed.

Any discussion of the potential development of claims other than the Mt. Vernon property in this EIS would be speculation, not fact. The information necessary to accurately judge the development potential of other claims in northwestern Montana is not available. The ASARCO Troy Project EIS was therefore constrained from making projections involving the possibility of future development of other potential ore bodies in the same general vicinity.

Comment:

> "Department of State Lands defines it scope quite narrowly in deciding what potential impacts it would consider. In particular, no attempt was made to discuss the cumulative impacts of the proposed ASARCO project together with other current and projected developments in the Lincoln-Sanders county vicinity. The argument given was that such cumulative impacts were more properly the focus of a regional EIS rather than a project specific study. This argument is inadequate for the following reasons: (1) There is no provision in existing statutes to initiate a regional EIS since the triggering mechanism in the EIS process is generally an individual permit application (as in this case) or an agency program evaluation (e.g. oil and gas leasing policy). Hence, regional impacts of the ASARCO Troy Project must be evaluated in this EIS if they are to be evaluated at all. (2) The construction of the facilities proposed by ASARCO and by Northern Lights for the Lake Creek-Mount Vernon area will have the effect of changing the economics of other potential ventures in the area. For example, the

existence of the concentrator may make the development of other ore bodies feasible, where previously none of them could have supported a concentrator on its own and could not have been profitably developed if the ore had to be hauled to other locations. Another example is the possible industrial development associated with the existence of the power line. Since the 115 KV line will have significant excess capacity other ventures requiring large amounts of power may now be served in the area with no additional transmission lines required, whereas in the absence of the ASARCO project such ventures would have been required to justify the investment in the line. These changes in the economics of other ventures are a result of the proposed action and as such their likelihood and their impacts should be evaluated.

Department of Natural
Resources and
Conservation, Letter
August 10, 978

Response:

Consideration of the additional socio-economic impacts brought about by the occurrence of the reregulation dam on the Kootenai River in conjunction with the ASARCO Troy Project is given in Volume Idraft EIS. The other project proposed for the area is the Kootenai Falls dam, which is currently still in a feasibility study status. The inclusion of this project in the ASARCO Troy Project EIS was not considered pertinent at this time to the projection of area cumulative impacts. At such time as an EIS is prepared for the Kootenai Falls project, the impact asssessment contained in that document will undoubtedly contain a discussion of the cumulative impacts of that project upon existing conditions, which, if the ASARCO Troy Project is granted approval, will include the mining project.

There is a distinct possibility that the existence of an operation such as the ASARCO Troy Project in the Lake Creek Valley could trigger other industrial development in the area. It is impossible to predict whether the existence of the concentrator would make the development of other ore bodies more feasible as suggested by the reviewer, since information regarding other ore bodies necessary to allow this consideration is not available. It would be equally questionable tp speculate as to the types of industry that the existence of the transmission line might encourage, and then attempt to assess the impacts resulting from these industrial developments. The review is referred to the recently released draft EIS prepared by the Department of Natural Resources and Conservation on the proposed transmission line for a discussion of the potential for future development of the area as a result of construction of the transmission line.

Comment:

"The Draft EIS fails to describe, even acknowledge, the extent of ASARCO/Bear Creek mineral holdings throughout the northwest portion of the State of Montana. While the Department might conclude they have

> no authority to evaluate such a wide scope, the Federal Government certainly does have not only authority, but obligation under NEPA's 'full disclosure' provisions (EDF v. Corps of Engineers, 2 ERC 1260, 1267 (E.D. Ark 1971). The issue, of course, is the extent of the ASARCO/Bear Creek regional mineral claim holdings and exceeding high potential for development. The general public remains unaware of this probability, and the document does little to enlighten them.
>
> By earlier letter, Agriculture Secretary Berglund has indicated the probability of mine development from a prospect is approximately the ratio of 1-10,000. The Secretary's information fails to distinguish that much of the recoverable mineral reserves from the corporate holdings in the vicinity are, at this time, proven to be commercial.

Montana Wilderness Association,
Letter
August 9, 1978

Response:

Bear Creek Mining Company has a large number of claims in the Lake Creek, Bull River, and Clark Fork River drainages dating from the late 1960s. ASARCO owns relatively few claims in the area and these date from 1975. ASARCO has acquired an interest in some of the Bear Creek claims and other owners through lease agreements. These agreements generally provide for a period of exploration work after which the agreement terminates. Lease agreements are generally not public documents, and are not available for use in the EIS.

The reviewer's statement that "recoverable mineral reserves from the corporate holdings in the vicinity are, at this time, proven to be commercial" indicates that the reviewer perhaps has access to information that is not available for use in the EIS.

Comment:

> "If we discuss and evaluate the local economic impacts of the mines ultimate closure. Why can't we similarly evaluate additional ASARCO/Bear Creek ventures coming on line?"

Montana Wilderness Association,
Letter
August 9, 1978

Response:

The ultimate closure of the proposed mine is a fact. Additional ASARCO/Bear Creek ventures coming on line is speculation, and the information to evaluate this possibility is not available.

Comment:

> "It seems mandatory to accomodate the cumulative impact of the total project contemplated by ASARCo and other claim owners in this EIS, since the first development is the 'keystone' for much more. I thus find the sociologic and cultural impact sections inadequate, and the physical impact sections incomplete. Tailings, for example, will cover a much larger area that proposed north of Bull Lake, and groundwater leaching, hydraulic geometry, and other impacts will doubtless be much larger."

Montana Wilderness Association,
Letter
August 9, 1978

Response:

The draft EIS for the proposed ASARCO Troy Project has considered the cumulative impact of the total project proposed by ASARCO Inc. It is not within the province of state and federal agencies to require that ASARCO Inc. or other claim owners reveal the total project "contemplated." To base impact projections upon what the authors consider to be the "contemplated" project without a project proposal would be speculation, and of little value to the objective EIS process.

Comment:

> "7. There is no mention of the at least four other known or potential ore bodies existent at Ross Pt., Dry Crk., Star Gulch and Rock Lake. Their development potential, and the economic feasibility of locating a smelter in the area as a result of their potential development."

Cesar Hernandez, Letter
August 9, 1978

Response:

The EIS does not evaluate the economic feasibility of locating a smelter in the area because a smelter is not a part of the ASARCO Inc. proposal for mining in the area. The future development of other potential ore bodies in the area is, at this time, purely speculation. To base an analysis of the potential for a smelter upon such speculation would not serve a useful purpose in the EIS. At the present time, it appears that environmental considerations, not economic favorability brought about by numerous developments, are the limiting factor for smelter siting.

Comment:

> "The draft EIS fails to reveal that ASARCO can be expected, and is, intensively lobbying non-wilderness designation for RARE II 1-662

> because identified mineral potential, while at the same time, the Secretary of Agriculture and Kootenai National Forest have, in the recent past, indicated mineral potential is sufficient to disqualify the area from wilderness classification. One must suspect if potential is so great as to cause such concern, perhaps such potential is of sufficient value as to require comprehensive review."

Montana Wilderness Association, Letter
August 9, 1978

Response:

The fact that ASARCO Inc. may be intensively lobbying non-wilderness designation for RARE II 1-662 is of no consequence to the EIS in objectively evaluating the potential impacts associated with the project. The proposed project does not involve lands included in RARE II 1-662. The EIS also did not identify those groups in the proposed project area that are lobbying intensively for wilderness designation of RARE II 1-662.

Comprehensive review of mineral related development potential is not possible with information that is available.

Comment:

> "Unfortunately, the potential utility of the EIS will be reduced by the narrowness of its scope. Other projects proposed for the Lincoln County area for approximately the same time frame will compound the potential environmental impacts to be sustained by the area. These projects would include:
>
> 1) the proposed Kootenai River re-regulating dam below Libby Dam;
> 2) the planned U.S. Highway 2 improvement project;
> 3) the planned Yaak River road improvement project, and
> 4) the proposed Northern Lights, Inc. 115 KV transmission line from Troy to the Mt. Vernon mine site.
>
> In addition, currently under study is a Corps of Engineers proposal for a hydro-electric dam at Kootenai Falls. We are well aware of the constraints of the EIS process, however, it may be helpful to the reader if the EIS included a brief description of these other activities which will be occurring coincidently with the ASARCO project."

Department of Community Affairs, Letter
August 10, 1978

Response:

A short discussion of these projects, with the exception of the Yaak River Road, is contained on pages 71 and 72, Volume I-draft EIS. In addition, Volume III-final EIS contains an update on these projects. The proposed dam on Kootenai Falls is a proposal of Northern Lights Inc., not the Corps of Engineers as indicated by the reviewer.

Comment:

> "Are there plans for further mine development at Star Gulch, Ross Point, and Squaw Peak?"

Kenneth Harsch, Letter
July 27, 1978

Response:

There have been no plans filed with state or federal authorities for development of these mining properties.

Comment:

> "The question must be asked: Have either DSL or the Forest Service requested core drill data on ASARCO/Bear Creek Mining claims exploration work in this vicinity? Those approximate areas of concern are as follows:
>
> 1. Chicago Peak (Cabinet Mountains Wilderness)
> 2. Star Gulch (Scotchman's Peak RARE II 1-662)
> 3. Ross Point (Scotchman's Peak RARE II 1-662)
> 4. Seven Point Mountain (Vermillion River drainage)
> 5. Trout Creek (RARE II 1-664)
> 6. Beaver Peak
> 7. Additional Ross PointSpar Lake (RARE II 1-662)"

Montana Wilderness Association,
Letter
August 9, 1978

Response:

Yes. On March 10, 1978, the Department of State Lands requested in a letter to ASARCO Inc. information regarding the results of exploration work at these areas, the exploration potential of other areas, and other potential development related questions for these areas. The contents of that letter are on file with the Department of State Lands' office in Helena, and available for review by anyone interested in the contents. ASARCO Inc., in a reply letter dated March 16, 1978, stated that "ASARCO's exploration department will not release information regarding their exploration plans or the exploration potential in Montana."

This information involves confidential data and competition within the mining industry. Claimants are reluctant to furnish exploration data because any information given to aid in an environmental impact statement is public information and available for review by the public as well as other mining companies competing for the mineral resources of the area. There is no requirement that this information be made available for the EIS process.

Comment:

> "Asarco has mentioned operating the mill and tailings pond after the closure of the mine, which certainly indicates that they see a definite possibility for future development. Such development would be rendered more feasible by the existence of a mill in the area, and an experienced work force."

Cabinet Resource Group, Letter
August 19, 1978

Response:

The existence of a mill facility in the area, as well as an experienced work force at the close of the ASARCO project would possibly be an advantage to future mining ventures. The foremost consideration, however, would be the existence of an ore body that could be economically developed.

5. Operating Plan

Comment:

> "The Bureau of Mines analysis concerning production changes probably did not include the costs of the Kootenai Falls dam or eventual removal of the tailings dump from the Lake Creek flood plain. These concepts are essential in the analysis of long-term impacts."

Environmental Information Center,
Letter
August 10, 1978

Response:

The cost of the Kootenai Falls dam was not included because it is not a part of the proposal of ASARCO Inc. for the Troy Project. The proposed mining project could function properly without the Kootenai Falls dam. It has never been proposed that the tailing impoundment, once in place, could be removed from the Lake Creek flood plain. To do so, without removal of the entire structure, which is impossible, would jeopardize the integrity of the structure. What has been suggested is the possibility of returning a portion of the tailing material to the mine-out portion of the mine, rather than transport it down the hill to the impoundment. That would reduce the size of the tailing impoundment by about 40 percent and add to the cost of the mining operation.

Comment:

> "An alternate route for the tailing slurry line should have been considered in the EIS."

Brad Sheppard, Libby Public Meeting
July 26, 1978

Response:

The EIS does not consider a "route" for the tailing pipeline, but rather a 600-foot corridor within which the pipeline would ultimately be located. As the proposed corridor is located adjacent to an existing road, and would require less construction disturbance than a corridor located elsewhere, it was considered to be the most feasible route for reducing the potential for impacts. Within the 600-foot corridor there are doubtless many routes that could be taken. Final selection of a "route" would be that route that was most safe, both in terms of engineering and potential for impact should a leak or spill occur.

Comment:

> "If the tailing pond water seepage is not seen as damaging to the Lake Creek system, the tailing pond water should be used by ASARCO for domestic purposes and thereby reduce the need for the fresh water wells."

Bill Martin, Troy Public Meeting
July 24, 1978

Response:

The fresh water wells would supply makeup water for use in the milling process only, and are not proposed to be used as a source of domestic water. The potable water supply would be obtained from a parallel submerged intake system along the upper fork of Stanley Creek as described on page 42, VolumeI-draft EIS. Use of tailing pond decant water for domestic purposes would not, therefore, reduce the need for the proposed fresh water wells. It is not anticipated that the tailing pond water would be suitable for domestic purposes without treatment since it would contain sewage from the proposed project.

Comment:

> "The EIS should have better defined the maximum amount of disturbance that could occur within the pipeline and utility corridor."

Steve Gibson, Troy Public Meeting
July 24, 1978

Response:

For the entire route of the proposed pipeline and utility corridor, with the exception of the area near the proposed milling facilities, a construction corridor of 600 feet would be initially permitted and bonded. This would allow ASARCO Inc. flexibility within a large area for placement of the facilities that would be influenced by topographic limitations, stability concerns, and other siting criteria identified in the final design and engineering studies for the route. The actual area that would be disturbed for construction of the facilities would be considerably less than the bonded area. The right-of-way clearance for the proposed transmission line would be 30 to 50 feet depending upon the pole strucutre. The pipeline right-of-way would take advantage of the transmission line right-of-way as often as possible. Since these facilities would be adjacent to the existing access road for most of their route, additional road construction should not be necessary.

After the actual location of the pipeline and transmission line are proposed, following the engineering and design studies, it is anticipated that ASARCO Inc. would redefine the boundaries of the bonded area to match the limits of the disturbance for the facilities. This would probably significantly reduce the width of the corridor, thus reducing the amount of reclamation bond necessary. The Department of State Lands and the Kootenai National Forest would review the final locations proposed for all facilities as such time that the design and engineering data were available.

Comment:

> "The possible connection between Northern Lights' proposal for a dam at Kootenai Falls and the Asarco Project must be looked into. Though both companies have denied any connection for the last two years, The Western News, on April 1, 1976, quoted Jack Bingham, Asarco's Troy Project coordinator, as saying 'We have a definite interest in the Kootenai Falls project.' Certainly the fact that Northern Lights would supply the power for Asarco, and their claim that they need the dam to supply future demands for power, is reason enough to investigate whether these two projects are connected."
>
> Cabinet Resource Group, Letter
> August 19, 1978

Response:

The commenter is referred to pages 42 and 43 of the recently released draft EIS for the proposed 115-kilovolt transmission line from Troy to Mount Vernon Mine prepared by the Department of Natural Resources and Conservation for a detailed examination of the relationship between the ASARCO Troy Project and the proposed Kootenai Falls Dam. The concluding sentence of the section exploring the possible connection between the two projects states "While there is thus no direct connection between the ASARCO load and the need for the applicant (Northern Lights Inc.) to participate in the Kootenai Falls Dam project, it is evident that if the ASARCO load does not come on line by June 30, 1982, then it will become part of that portion of the applicant's load growth which must be served from sources other than BPA."

Comment:

> "We strongly endorse the proposal for shuttle bus service to transport workers between Troy and the mine. A shuttle service from Troy would, again, encourage proper area growth and eliminate over-

burdening traffic on the mine route."

Town of Troy, Letter
August 10, 1978

"Finally, I think that a bussing system should be set up from a central parking lot on the Bull Lake Road to the mine. This would have many benefits. It would reduce the size of the parking lot needed at the mine site, keep the amount of traffic on the access road down to a minimum, reducing wear and tear on the road, and reduce wildlife encounters and mishaps, possibly discouraging misuse of firearms."

Jean Guidry, Letter
August 7, 1978

Response:

A bussing service for mine employees has been included as a suggested mitigation measure in Volume III-final EIS.

Comment:

"While the DEIS did address the need for protection from structural fire, no mention was made concerning the increased probability of non-structural fire starts. The increased use of the forests in the project area will surely increase this possibility; at the same time, the values of the proposed structures and the affect of damage to the tailings pipeline will necessitate rapid response to a fire start. The end result could be increased forest fire protection costs."

Dept. Natural Resources and Conservation
Letter
August 10, 1978

Response:

As stated on page 39, Volume I-draft EIS, "A fire fighting crew manned by an employee trained in mine and surface fires would have quarterly fire drills and would be readily available with heavy equipment to aid in fighting forest fires." Regardless of the existence of the ASARCO facilities, the U.S. Forest Service would initiate a rapid response to a fire start in this area. The availability of a ready trained fire-fighting crew at the ASARCO facilities, plus the normal rapid response anticipated for any fires in this area should not result in a significant increase in forest fire protection costs.

Comment:

"There is tremendous potential for small scale hydroelectric power generation. This system could comprise a stairstep or staged series of generators utilizing Sparr Lake discharge. The details of this alternative have not received sufficient attention from parties interested in avoiding unnecessary degradation of Kootenai Falls."

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

The recently released draft EIS prepared by the Montana Department of Natural Resources and Conservation for the proposed 110-kilovolt transmission line associated with the Troy Project considered the potential for Stanley Creek hydropower. The following is the conclusion contained in that document:

> "Also considered was the possibility of construction of a hydroelectric facility on Stanley Creek. According to the preliminary estimates made by an independent promoter (Delp, 1976), minimum flows on Stanley Creek are sufficient to generate 5000 hp. or approximately 3.73 MW. This is insufficient to operate the loads of the proposed mine and concentrator."

There is no Spar Lake discharge in the form of a stream. Discharge is an underground aquifer surfacing as springs at the head of Stanley Creek. As stated previously, the ASARCO Project Troy Project has no connection with the potential for unnecessary degradation of Kootenai Falls.

Comment:

> "If the peak power from local generating equipment is insufficient to meet peak demands at the mine, more planning and load planning is in order."

Jennifer O'Loughlin, Letter
August 8, 1978

Response:

Local peaking power is probably sufficient to meet the needs of the proposed ASARCO Troy Project. The Northwest transmission grid system also supplies peaking power across the Pacific Northwest. The local generating sources, therefore, cannot be said to supply the base power load for the proposed project. This base load is provided by the entire power transmission grid also supplied from generating sources outside of northwest Montana.

Comment:

> "Page 46, second paragraph. This paragraph states that if a spill were to occur from a stilling well, the impounded tailings would be removed and transported to the tailings disposal site. We see no provision for impounding tailings at the stilling wells."

U.S. Department of the Interior,
Letter, September 5, 1978

Response:

The phrase "impounded tailing" as used in the draft EIS is incorrect and misleading. Originally, ASARCO Inc. proposed the construction of containment basins around each of the drop-boxes. This proposal, however, was later dropped from the application. The reference to impounded tailing was inadvertently left in the text of the draft EIS. The Volume III-final EIS does include the construction of containment basins around each of the drop-boxes as a measure that would provide for the greatest measure of protection to the area's resources.

Comment:

> "Page 51, 'Starter Dam Embankment.' In our earlier comments, we pointed out the importance of constructing a zoned starter dam by placing more permeable materials towards the downstream side and less permeable materials towards the upstream side (see Volume II, Appendix T). A variety of materials appear to be available at the proposed damsite and such construction would produce a more stable dam at very little added cost."

U.S. Department of Interior,
Letter
September 5, 1978

Response:

The Volume III-final EIS contains the suggested zoned construction of the starter dam embankment as a measure that would provide the greatest degree of protection to the area's resources.

Comment:

> "Page 57, 'Tailing and Pond Decant System.' The following statement is quoted from our earlier comments on that subject (Volume II, Appendix T, page 5):
>
> 'For decanting we suggest the use of two separate gravity decant lines and towers rather than a barge pump. The flat terrain does not lend itself to a deep clear water pool; therefore, the barge may have difficulties with mud. In winter, low pressure air would have to be bubbled around the barge to keep it free of ice. This action might agitate the water enough to keep the fines in suspension.
>
> Some differential settling will occur as the tailing impoundment is raised; however, the decant lines could be designed to accommodate this problem. Leaving the gravity decant lines in place upon abandonment of the pond would aid in drainage of the area and

> help to prevent formation of mud flats during wet seasons. If the gravity decant system were to fail, a barge system could be initiated at a later date, whereas the gravity decant system cannot be installed after the starter dam has been constructed and filling of the pond begun.'"

U.S. Department of Interior, Letter
September 5, 1978

Response:

The Volume III-final EIS contains the suggested use of two separate gravity decant line and towers as a measure that would provide the greatest degree of protection to the area's resources.

Comment:

> "The BPA forecasts for future power needs for this area really only make sense if large industrial development is expected. The possibility that this and other mineral developments in this area--coupled with increasing costs of transporting ore--could lead to construction of a smelter here, needs to be addressed."

Cabinet Resource Group, Letter
August 19, 1978

Response:

BPA power forecasts for the future power needs of the area include the power necessary to supply the proposed ASARCO Troy Project. For a further discussion of the relationship of the ASARCO Troy Project and future power needs of the area, the reader is referenced to the recently released draft EIS prepared by the Montana Department of Natural Resources and Conservation for the proposed 115-kilovolt transmission line associated with the Troy Project. Page 77 of the DNRC draft EIS states the following regarding the power line and future growth of the area:

> "The possible effects of increased power availability on future growth patterns in the Lake Creek Valley, while difficult to predict, deserve mention. Although the cause-and-effect relationship between growth and power availability is complex, it can be said that growth demands increased power availability. In constructing the proposed line and supplying projected future power needs, a commitment is made to allow increased population density, increased use of energy, and continued land use change in the valley. All of these would have significant long-term effects on the valley's environment."

As stated previously, the information necessary to project the potential for future construction of a smelter in the Bull River Valley is not presently available.

Comment:

> "Page 32. Are there sufficient 100-80 ton railroad dump cars available to haul mine concentrate?"

Montana Wilderness Association, Letter
August 9, 1978

Response:

This information is not available. If the project is granted approval, then ASARCO Inc. will begin the process of obtaining the railroad dump cars necessary to haul the mine concentrate. As the actual haulage of concentrate by the rail cars would be approximately three years in the future from the start of construction activities, it is assumed that their availability would not be a problem if planned for in advance.

Comment:

> "Page 60. Any aggregate obtained from the quarry south of Bull Lake would entail substantial industrial traffic on the Sanders County portion of the roadway in addition to safety hazard during summer months of recreational use at Bull Lake."

Montana Wilderness Association, Letter
August 9, 1978

Response:

If aggregate were obtained from this source, an increase in truck traffic along this portion of the Bull Lake highway would be expected, possibly creating a safety hazard during the summer months of recreational use at Bull Lake. The aggregate quarry south of Bull Lake is anticipated to be used only if there is not sufficient aggregate present at the site of the proposed tailing impoundment.

Comment:

> "Page 308. First you say 'Breakage potential is low', then that of the system will depend upon 'design construction and operation', next you 'anticipate' that with the above on line the system would be 'relatively safe'. Will, in fact, construction of the facility determine its safety and how will this project be monitored to assure its accomplished in an appropriate manner?"

Montana Wilderness Association, Letter
August 9, 1978

Response:

Construction of the tailing pipeline will definitely influence its potential for adverse impact through final determination of the use of materials, and location of the line. The construction of all facilities associated with the proposed mining project would be closely monitored by inspectors from the Hard Rock Bureau of the Department of State Lands to insure that construction is being accomplished in an appropriate manner and as provided for in the mining and reclamation plan.

Comment:

> "Page 398, sixth paragraph. The report states that tremendous advances in technology would be required before a decision could be made to extract the pillars. The technology for at least partial pillar extraction exists today and is used quite frequently. The procedure is more expensive than the room and pillar methods; however, it is possible that after the initial capital costs of the proposed operation have been fully depreciated and amortized through mining of 75 percent of the orebody, the metal market and mining cost situation will be such that pillar extraction could be accomplished profitably."

U.S. Department of the Interior, Letter
September 5, 1978

Response:

The intent of the statement was to indicate that following the possible removal of selective pillars, as suggested on page 19, Volume I-draft EIS, tremendous advances of technology would be needed to retrieve additional amounts of the resource. Final determination as to the possibility of selective pillar removal will depend upon rock mechanics factors encountered during the mining process.

Comment:

> "The Forest Service is to issue mining permits when it is in the public interest. There is no determination of what is in the public interest. I think we should know whether the environmental, recreational, and social costs are outweighed by the benefits of copper to our nation and the additional income to our community before a permit is issued."

Kathy Johnson, Letter
August 9, 1978

Response:

The Forest Service approves plans of operation that permit mining under the authority of "National forest surface use under US mining law" (Appendix X, Vol. II Draft EIS). These regulations are based upon the rights granted the miner under the 1872 general mining law. The laws and regulations do not specify, "when in the public interest," as a condition of approval of planned mining operation. The National Environmental Protection Act requires that the environmental, social and economic impacts be shown as a result on any major federal action be brought to the attention of the decision maker and the public. NEPA does not authorize denial on these grounds.

Comment:

> "My concern is that if Asarco is granted a permit to mine under the provisions of the Montana Hard Rock Mining Law, it may not begin its operation until some later, more favorable time. This may be one year, two years, five or even ten years. As I understand it, a permit is generally issued for the life of the mine and there is generally no requirement by the state that operations begin at any certain time.
>
> The delay between the issuance of the permit to mine by the state and its use by Asarco will become more important as the time increases. Advances in technology to mitigate environmental damages and changes in the social situation which would be affected are only the more obvious changes that could occur. The environmental impact statement itself could be antiquated by the time Asarco actually mines.
>
> The stipulation process is one used by the Board of Health and other state agencies who grant state authority providing certain contingencies are met. I would request that it be used by the Department in this instance. If a permit is issued, it should contain a stipulation that if mining operations are not initiated within a time the Department may review and revise the environmental impact statement and the permit itself."

Representative Joe R. Roberts,
Letter
August 10, 1978

Response:

The Hard Rock Law, Section 50-1210, R.C.M. 1947, provides that the permit shall remain valid until the surface or underground mining authorized by the permit is completed or abandoned. There are not statutory provisions which require that if a permit is issued it be implemented within a certain period of time. The statute does indicate that a permit could expire if an operation is abandoned. It could be interpreted that after a certain period of time if a project had not been commenced it had been abandoned and therefore the permit would terminate. However, such a decision would have to be made on a case-by-case basis, depending on the circumstances involved.

The issuance of a hard rock operating permit is not as final as it may seem. Section 50-1210 provides that the reclamation plan may be modified by the Board of Land Commissioners or the department: if it is necessary to modify the requirements so that they will not conflict with existing laws; if the previously adopted reclamation plan is impossible or impractical to implement and maintain; or when significant environmental problem situations are revealed by field inspections. This section provides substantial statutory authority for the department to modify a plan if any unforeseen circumstances arise in the future. In addition, Section 50-1214 has substantive authority in requiring that a permit must comply with state air and water quality standards and must provide an acceptable method of reclamation. If for some reason these standards could not be met subsequent to a permit decision, it may be possible to terminate the permit based on that section. If the department were to significantly modify the permit and that modification were not addressed in the original impact statement, it may be necessary to modify or update the impact statement.

Comment:

> "The location of the main adit and the tailings slurry line are apparently unknown. Until such plans are publicly presented in formal design, it is not safe to assume that the company has allowed realistic assessment of their activities, nor that they have a complete permit application."

Environmental Information Center, Letter
August 10, 1978

Response:

All final designs for the project, when they are available, must be reviewed by the state and federal regulatory agencies. If the final designs represent significant deviations from the original design concept that would create potentially different impact problems, additional environmental review of the proposal would be necessary. A complete permit application is defined in the Hard Rock Law. The Department of State Lands has determined that the information submitted to date by ASARCO Inc. for the proposed Troy Project meets the requirements of that definition and the permit application is therefore complete.

Comment:

> "Here and in identical situations, the Draft indicates ASARCO is considering this or that above and beyond the scope of the EIS.

This leaves the reviewer a bit lost to know how much influence the State or Federal agencies have in controlling or structuring development of the various facilities."

Montana Wilderness Association, Letter
August 9, 1978

Response:

All facilities proposed for the mining project must be developed in accordance with the provisions of all state and federal laws that regulate mining development. If the final design proposed by ASARCO for the mining facilities differs significantly from that discussed in the EIS, additional environmental analysis would be necessary before approval of the facilities could occur. It must be noted that the Hard Rock Law is not a siting law, as in the Strip Mine Siting Act Law that regulates strip mine siting. It is primarily a reclamation law.

6. Reclamation Plan

Comment:

"Page 317. We see two 'ifs' here. Has a successful reclamation plan been filed?"

Montana Wilderness Association, Letter
August 9, 1978

Response:

The reclamation plan filed by ASARCO Inc. for the Troy Project is currently being evaluated by the Department of State Lands to determine if it would meet the requirements of the Hard Rock Law. The success of the reclamation plan as referred to on page 317, Volume I-draft EIS, is something that can never be totally assured until the plan is implemented. The proposal by ASARCO Inc. to operate an experimental tailing impoundment for the purpose of experimental reclamation and revegetation during the life of the project should help to improve the chances of initial successful reclamation without additional attempts.

Comment:

"The possibility of mass failure of either the tailings pond or pipe line must be examined. The area is criss-crossed with faults (See map on page 302). On page 315 it states that failure could be 'catastrophic' to the water quality of the area. On page 322 'if anaerobic conditions developed in the sediment following its deposition in the stream the metals could go into solution and become toxic.' I would like to know how the conditions could develope to

> create an anaerobic environment. Stagnating pools in the eventuality of a drought?
>
> At the end of the Mines life the tailings pond is to be reclaimed. On page 304 it says that the soils beneath the tailings could be altered as a result of ion exchange with the permanent lossage of productive capacity. Couldn't this 'ion exchange' also occur with the two feet of soil spread over the tailings for reclamation?"

Barbara Roy, Letter
August 10, 1978

Response:

The anaerobic conditions referred to in the text could occur in the stream substrate beneath the layer of introduced tailings material, where air would not be present. In stagnating pools there would always be an exchange of oxygen with the surface of the pool and the surrounding air.

Ion exchange would primarily occur as a result of the perculation of seepage through the soils underlying the tailing impoundment. The possibility for ion exchange to occur in the soils overlying the tailings would be present, through capillary action; however it is not anticipated that the amount or type of ion exchange would be limiting to the productive ability of the topsoil, as the seepage water would have perculated downward prior to reclamation.

Comment:

> "Will the post mining hydrogeologic make up of the tailings pond area be conducive to growth of native vegetation as well as that proposed for reclamation? What will be the long term effects of sorption of waste metals (and byproducts) onto the clayey soils in the vicinity of the tailings pond? Will this affect long term site productivity as well as local ground water quality?"

Chuck Dalby, Letter
August 4, 1978

Response:

It is anticipated that the post mining hydroegologic make up of the tailing impoundment would be conducive to growth of native vegetation. The answer to that concern as well as the others expressed in the comment would be the primary goal of the experimental tailing impoundment reclamation studies proposed to occur concurrently with the mining project.

Comment:

> "From a comment made on Page 67, ('Should initial revegetation attempts fail') it seems that reclamation of the proposed tailings

pond is not a certainty. A similar comment on Page 69 with reference to the purposes of an experimental tailing impoundment ('to research the effect of tailing material on plant growth...' indicates a further lack of prior knowledge of the success or failure of proposed reclamation.

Thus, the outcome of reclamation of the tailings pond area is something which is uncertain, but yet it is tacitly assumed in several parts of the DEIS that it will succeed. For example, on Page 399 (under e. Water Resources) it is assumed that only small quantities of water will percolate through the reclaimed pond".

Chuck Dalby, Letter
August 4, 1978

Response:

One can never be 100% certain that initial reclamation will be successful. The plan for reclamation submitted by ASARCO plus the research on plant growth on the experimental tailing impoundment should increase the probability of initial success of the reclamation effort. It should have a very good chance of success.

On page 399 Vol I DES, we are saying that of the precipitation falling on the impoundment area only a small amount will percolate downward through the entire impoundment area and enter the underground flow. The statement is really not related to reclamation.

Comment:

"No mention is made of the quantity of the reclamation bond ASARCO will have to post for pursuing mining operations and disturbing federal lands."

Cesar Hernandez, Letter
August 8, 1978

Response:

Because of the court decision regarding the ASARCO facilities and the Hard Rock Law that was pending at the time of the printing of the draft EIS, the bond total was not finalized. The bond recently filed by ASARCO Inc. with the Department of State Lands is in the amount of $1,000/acre, for a total bond of $2,752,000. The bond covers reclamation of all lands in the permit boundary.

Comment:

"As to reclamation, pg. 402 says the land may be committed to other uses because of the initial use, delaying or halting restoration of the mining area without giving specifics."

M. H. Daniels, Letter
August 9, 1978

Response:

Rule 5 (a) of the Department of State Lands' rules and regulations adopted pursuant to the Hard Rock Law provides that land disturbed by development or mining activities must be reclaimed for one or more specified uses, including but not limited to: forest, pasture, orchard, cropland, residence, recreation, wilderness, industry, habitat (including food, cover, or water) for wildlife or other uses. According to this section of the rules, if another industrial use of the properties could be found after the mining project were completed, the new industrial use could qualify as acceptable reclamation of the site.

Comment:

"Page 67. Revegetation should consist of native flora."

Montana Wilderness Association,
Letter
August 9, 1978

Response:

Although the Hard Rock Law does not require that native flora be used in reclamation and revegetation, the proposed list of grasses, legumes, shrubs, and trees to be used by ASARCO Inc. in its reclamation program (page 67, Volume I-draft EIS) contains native flora.

7. General

Comment:

"The EIS should have discussed the current situation as regards the United States silver depletion."

Pat Crowley, Noxon Public Meeting
July 25, 1978

Response:

It is not the intent of an impact statement to justify a proposed project. There are currently no provisions in the Montana laws regulating hard rock mining to base a permit decision upon need of the proposed project.

Comment:

> "Initially, our attention is drawn to the actual effectiveness of the air and water quality laws of Montana and the manner in which they have been enforced at mining operations. We feel that the reference to these laws as mitigations is not valid, since their enforcement is weak. The tremendous effort recently put forth by residents of the Stillwater area was met by a very unsatisfactory performance by the State regarding water quality problems at the Johns Manville operation. The faulty design of the Mikehorse impoundment system near Lincoln resulted in severe biological damage to the Blackfoot aquatic system. We are also aware of other mining areas where water quality problems exist. We appreciate those efforts made to inventory such problems, but feel that enforcement and data collection are not as efficient as implied by our laws. The current air quality problems in Butte are another example where citing laws as mitigations to mining is not appropriate."

Environmental Information Center, Letter
August 10, 1978

Response:

The Department of State Lands knows of no other way to legally enforce the environmental standards of the State of Montana other than through the use of legally established laws designed to require compliance by industry to these regulations.

Comment:

> "Page 8, 'Responsibilities of and Relationships Between Federal Agencies.' The USBM is mentioned in this section heading; however, our role is not explained in the narrative. The Bureau of Mines has no regulatory responsibilities under the mining laws nor any management authority over the subject lands or mineral resources. Ours is a consulting role with the Forest Service concerning technical matters related to mining plans."
>
> "Page 405, 'Laws and Regulations.' The USBM enforces no mining regulations. Federal mining health and safety regulations which were previously the responsibility of the Bureau of Mines are now administered by the Mine Environment and Safety Administration."

U.S. Dept. of the Interior, Letter
September 5, 1978

Response:

You are correct. The references to the USBM on pages 8 and 405 of the Volume I-draft EIS are inaccurate. Thank you for the correction.

Comment:

> "The EIS did not investigate ASARCO's labor or environmental record which to date is nothing short of atrocious. I have collected letters and news articles documenting the disregard ASARCO holds for the environmental, safety, and labor conditions at its facilities. This again concerns public interest."

Rick Johnson, Letter
August 9, 1978

Response:

The authors of the EIS did not consider it pertinent to the objective analysis of the potential for impacts from the ASARCO Troy Project to consider the past labor and environmental record of ASARCO Inc. in different projects, under different circuumstances, and regulated by laws that may or may not have been comparable to those in Montana. Regardless of ASARCO's past actions in other states, the laws of Montana must be complied with in order for the project to remain in operation.

Comment:

> "The DEIS for the ASARCO project describes the authorities, responsibilities, and relationships between federal and state agencies involved in the management of affected lands or in the decision/permitting process. The statement does not, however, refer to the Fish and Wildlife Coordination Act or provide a map showing land ownership in the affected area."

U.S. Department of Interior, Letter
September 5, 1978

Response:

The plan for the proposed mining operations does not contain any actions covered by the provisions of the Fish and Wildlife Coordination Act. Should the final designs for the facilities involve actions that would be covered by the Act, consultation with the appropriate agencies would be required to fulfill the requirements of the Act. A landownership map is contained on page 253, Figure II-22, Volume I-draft EIS.

Comment:

> "The process of public input for the EIS review does not appear to be working very well. If the agencies involved do not wish to be continually labeled as 'going through bureaucratic motions' they must develop better opportunities for more people to feel that their

input is really desired and will be used."

Institute for Social Research, Letter
August 7, 1978

Response:

Although the Hard Rock Law is very limited in the consideration of items to be used to approve or deny the proposed mining project, discussion of additional concerns during the EIS review process for the ASARCO Project is very important for other state, federal, and local officials that can possibly aid in achieving the greatest protection of the area's resource through other provisions. These concerns may also be taken note of by ASARCO Inc. for possible future use in improving their image as a corporate citizen of the Troy area. In addition, the concerns raised by the general public as to the limitations of the existing Hard Rock Law, as brought to their attention by this first hard rock EIS to be prepared in Montana, could be very instrumental in initiating changes in the law to better reflect the concerns and wishes of the general public.

II. MITIGATING OR COMPENSATING MEASURES

A. Introduction

Three basic types of mitigating measures have been identified in the draft ASARCO Troy Project EIS as relative to the ASARCO Inc. Troy Project proposal. They are: (1) measures required by local, state, or federal laws, regulations, or executive orders; (2) measures proposed by ASARCO as part of their mining and reclamation plan; and (3) other measures generally thought to have merit by the EIS authors and the general public. The first two categories include those measures that are binding upon ASARCO and must be implemented upon approval of the proposal and issuance of the various agency permits associated with the mining proposal. By attachment of stipulations, other measures comprising the third category may be required as part of the companies' reclamation plans in those instances where the permitting state or federal agencies have the authority to do so. In addition, measures in the third category include those that local governments can implement to aid in reducing the potential for adverse impact to the area should the project be approved.

Pages 405-425, Volume I-draft EIS contain a detailed discussion of possible mitigating and compensating measures for the proposed ASARCO Inc. Troy Project. The text of the discussion is adopted by reference for Volume III-final EIS. Those measures identified in pages 405-425, Volume I-draft EIS would aid in providing the greatest degree of protection to the area's resources, particularly in consideration of (1) the lack of final design information for the facilities of the proposed project, and (2) the uncertainties regarding the accuracy of impact projections that are inherent in all impact analyses that must be based upon unknown factors, human judgment, and assumptive conditions.

These measures, as well as the information contained in the proposed mining and reclamation plans of ASARCO Inc., are being reviewed by state and federal agencies to determine their applicability to the provisions of laws regulating mining activities in the state of Montana. Inclusion of these measures in this statement in no way obligates ASARCO or restricts the decision-making prerogatives of the federal and state regulatory agencies.

Among those measures considered as mitigation are those that involve the implementation of a different or varient plan of operations. Technologic alternatives and their possible application to the proposed ASARCO Troy Project are contained in pages 436-442, Volume I-draft EIS and are also adopted by reference for use in Volume III-final EIS for the ASARCO Troy Project.

In addition to those mitigation measures identified in Volume I-draft EIS, the following are other measures identified in the EIS review process that have been deemed to provide for the greatest degree of protection to the existing resources. These measures are to be considered as supplemental to those contained in Volume I-draft EIS.

B. Summary of Mitigating or Compensating Measures

1. Topography

- replacement of a portion of the tailing material within the mine-out portion of the mine, thus reducing the size of the tailing impoundment.

- location of a portion of the proposed mill facilities within the underground mine, thereby reducing the surface disturbance at the proposed mill site.

2. Air Quality

- installation of emission control devices by ASARCO Inc. on all equipment used in the mine and construction activities to reduce the risk for air quality degradation.

- maintenance of the surface of the tailing impoundment to prevent tailing dust from becoming airborne during dry, dusty periods.

3. Geology

- completion of a comprehensive study and analysis of the fault systems in the area of the project, particularly adjacent to the proposed tailing impoundment to better provide for implementation of design criteria adequate to protect the structure during periods of seismic shock.

4. Soils

- adoption of those mitigating measures identified in Volume I-draft EIS.

5. Water Resources

a. Surface Waters

- construction of impoundment basins around all drop-boxes (stilling wells) along the route of the tailing pipeline where the possibility of an overland flow of tailings into a live stream is the greatest.

- placement of riprap or other corrective measures necessary to prevent a long-term migration of the Lake Creek channel into the toe of the tailing impoundment structure.

b. Groundwater

- adoption of the recommendation by the U.S. Bureau of Mines for a method of sealing the bottom of the tailings impoundment (Appendix T, Volume III-draft EIS).

c. Water Quality

- Continuous monitoring of Stanley and Lake Creek as proposed on pages 414-415, Volume Idraft EIS.

6. Flora

Mitigation of potential impacts to vegetation is linked closely with the successful mitigation of the impacts to the soils resource identified previously.

- adoption of those mitigation measures identified on pages 411-413, Volume I-draft EIS.

- adoption by state and federal agencies that species of vegetation used in the proposed reclamation program be those that are determined to be the most beneficial and useful to the native wildlife populations.

- study of revegetation on the experimental tailing impoundment by ASARCO Inc. be directed toward investigating the effects of the tailings pile on deep rooting species of vegetation to aid in the rapid and successful reclamation of the tailing impoundment area.

7. Aquatic Productivity

- adoption of those mitigation measures identified previously for water resources, as well as the monitoring program described on pages 414-415, Volume I-draft EIS.

8. Terrestrial Fauna (Including Endangered and Threatened Species)

- adoption of those mitigation measures identified for terrestrial wildlife on pages 416-417, Volume I-draft EIS.

- implementation of the restrictions suggested by the U.S. Fish and Wildlife Service in their May 22, 1978 letter containing the biological opinion of the impacts of the proposed mine on the grizzly bear and its habitat. These restrictions are:

> 1) Access to Mt. Vernon should be restricted to the north side using the present road system as proposed. Access from the south (Ross Creek side) would cross core habitat and should be prohibited.
>
> 2) Improvement of the access road will attract and increase human use of the area. The Forest Service and ASARCO should develop a road system management plan to restrict nonessential use and minimize human access to the core habitat and surrounding area.
>
> 3) ASARCO should develop an education program and appropriate firearms policies for company employees to prevent grizzly mortality from illegal killing or over-reactive self-protection measures.
>
> 4) Garbage storage and collection systems should be designed to be unattractive to bears.
>
> 5) Grizzly bear experts should be consulted prior to revegetation of disturbed sites and road grades. Proper plant species should be selected to avoid attracting bears into the area.
>
> 6) ASARCO should give consideration to a bus to transport employees from a parking area at the tailings pond into the plant sites. This would minimize the potential for adverse bear-man conflicts along the access road, as well as conserving energy and reducing maintenance costs for the road.

These same conditions should be applied to the protection of all other species of wildlife in the project area. Their adoption would lessen the identified potential of adverse impact to the area's wildlife populations should the project be granted approval.

9. Employment and Populations

- consideration by ASARCO Inc. of an extended mine life as discussed on pages 417-419, Volume I-draft EIS.

- implementation by ASARCO of a policy to give preference to those job applicants that can provide evidence that they are residents of the local area, and not recent inmigrants.

10. Land Development

- adoption by local governments and ASARCO Inc. of those measures contained in the discussion on pages 419-420, Volume I-draft IES.

11. Quality of Life

- adoption by local governments and ASARCO Inc. of those measures contained in the discussion on pages 420-421, Volume I-draft EIS.

12. Social Services and Public Facilities

- adoption by local governments and ASARCO Inc. of those measures contained in the discussion on pages 421-423.

- adoption by ASARCO Inc. of an employee busing plan to reduce traffic, road maintenance, wildlife harrassment, and improve the safety factor along the proposed haul road.

13. Recreation

- implementation by state, federal, and local governments, and ASARCO Inc. of the measures discussed on page 424, Volume I-draft EIS.

- implementation of those measures previously identified for quality of life, water resources, wildlife, social services and public facilities, and land development.

14. Public Safety

- pursual by local governments of those measures contained on page 424, Volume I-draft EIS.

15. Social and Welfare Services

- initiation of planning on a local level to meet the anticipated increased levels of service in advance of the increase should the project be granted approval.

16. Health Services

- the draft EIS concludes that existing services are anticipated to be able to accommodate the increased need of health services should the project be granted approval.

17. Visual Resource

- implementation of those measures contained in the discussion on page 425, Volume I-draft EIS.

- location of a portion of the proposed mill facilities in the underground mine.

- replacement of a portion of the tailing material within the mine-out portion of the underground mine.

- implementation of those measures previously identified for the air quality resource.

18. Archaeological and Historical Sites

- implementation by ASARCO Inc. of the suggestion of the Montana State Historical Preservation Officer (Letter, August 11, 1978) to establish several exploratory pits on the site of the proposed tailing impoundment to further substantiate the likelihood of the occurrence of subsurface cultural remains at the site.

19. Tailing Pipeline Construction

- use of pipeline construction materials and techniques that will provide for the greatest protection from leaks, spills, or failures of the pipeline.

- construction of impoundment structures around the base of all dropboxes (stilling wells) along the route of the tailing pipeline that are in areas with the greatest risk for overland flow of tailings into a live water course should the line plug and the drop box overflow with tailings.

- location of the pipeline along the upslope side of the proposed haul road to reduce the risk for spilled tailing slurry to reach any live water courses.

- maintenance of an inspection program designed to alert line operators of a break, leak, or spill of tailings from the pipeline.

- review of final design specifications for the tailing pipeline and route by appropriate state and federal officials.

- immediate corrective action should the tailing pipeline break, leak, or otherwise result in a spill of tailings material.

20. Tailing Impoundment Construction

- adoption of the recommendation by the U.S. Bureau of Mines for a method of sealing the bottom of the tailing impoundment (Appendix T, Volume I-draft EIS).

- adoption of a tailing dam design that would provide the greatest degree of protection from leakage or failure in the event that seismic shocks should occur during the life of the operations. This could involve the construction of a zoned starter dam, rather than a homogenous dam as proposed, by placing more permeable materials towards the downstream side and less permeable materials towards the upstream side (as proposed by the U.S. Bureau of Mines, Volume II-draft EIS, Appendix T). A variety of materials appear to be available at the proposed damsite and such construction would produce a more stable dam at very little additional cost.

- As proposed by the U.S. Department of the Interior:

> "For decanting we suggest the use of two separate gravity decant lines and towers rather than a barge pump. The flat terrain does not lend itself to a deep clear water pool; therefore, the barge may have difficulties with mud. In winter, low pressure air would have to be bubbled around the barge to keep it free of ice. This action might agitate the water enough to keep the fines in suspension.
>
> Some differential settling will occur as the tailing impoundment area is raised; however, the decant lines could be designed to accommodate this problem. Leaving the gravity decant lines in place upon abandonment of the pond would aid in drainage of the area and help to prevent formation of mud flats during wet seasons. If the gravity decant system were to fail, a barge system could be initiated at a latter date, whereas the gravity decant system cannot be installed after the starter dam has been constructed and filling of the pond begun."
> (U.S. Department of the Interior, Letter, September 5, 1978)

- replacement of a portion of the tailing material within the mined-out portion of the underground mine, thus reducing the size of the proposed tailing impoundment by as much as 40 percent (U.S. Bureau of Mines, Appendix T, Volume I-draft EIS).

III. ALTERNATIVES TO THE PROPOSED ACTION

A. Introduction

ASARCO Inc. has made separate applications, as required, to the Commissioner of the Montana Department of State Lands and the Supervisor of the Kootenai National Forest for permission and approval of a plan of operation to develop and mine a copper-silver ore body near Mt. Vernon in northwest Montana.

The ore body is on patented land. Some of the mine development and all of the milling operation will take place on federally owned land. The tailings impoundment and part of the tailings slurry line will be on privately owned land.

Given the existing dual regulatory and approval authority regarding the present proposals, the viable and reasonable alternative courses of action available to state and federal agencies for the mine proposal differ significantly. A detailed discussion that recognizes the individual responsibilities of the federal and state governments, and the various alternatives available to the Secretary of Agriculture and to the state authorities is contained on pages 427-436, Volume I-draft EIS and is incorporated in Volume III-final EIS by reference. A summary of the alternatives available to state and federal authorities is listed below.

B. Administrative Alternatives Available to the Federal Government

The Secretary of Agriculture can:

- approve the operating plan as submitted.

- approve the operating plan as submitted with mitigating measures.

- require modification of the operating plan to meet environmental and administrative constraints.

- require both modification of the plan of operation and mitigating measures.

- disapprove the plan of operation.

The U.S. Forest Service, Kootenai National Forest Record of Decision regarding the application by ASARCO Inc. for approval of the Troy Project Plan of Operations is included in Volume III-final EIS, Appendix C.

C. Administrative Alternatives Available to State Agencies

1. Department of State Lands

- approval of the operating permit for the life of the operations under the provisions of Section 10.(50-1210)(c)(2) of the Hard Rock Law

  (a) require a performance bond under the provision of Section 11.(50-1211) of the Hard Rock Law.

  (b) suspension of the permit under the provisions of Section 25.(50-1225) of the Hard Rock Law.

- denial of the operating permit under the provisions of Section 14.(50-1214) of the Hard Rock Law.

2. Department of Natural Resources and Conservation

- approval of application for beneficial water use permit under the provision of Section 885 and Section 886.(1) of the Water Use Act.

- denial of application for beneficial water use permit under the provision of Section 880.(3) of the Water Use Act.

- issuance of a provisional permit under the provisions of Section 880.(4) of the Water Use Act.

- approval or denial of the Certificate of Environmental Compatability and Public Need for construction of the proposed 115 kilovolt transmission line would be required to meet the criteria contained in the Montana Major Facilities Siting Act. These criteria are discussed in detail in the recently released draft EIS for the proposed transmission line prepared by the Department of Natural Resources and Conservation and are incorporated in this text by reference.

3. Montana Department of Highways

- approve, modify, or deny an Approach Permit under the provision of Sections 18-2.6AI(1)S615 and 5635.

4. Montana Department of Health and Environmental Sciences

a. Water Quality Bureau

- denial of a Montana Discharge Elimination System Permit (MPDES) for the mine portal discharge under the provision of Section (6)(b) of rule MAC 16-2.14(10)-S14460.

- issuance of a MPDES permit for the mine portal discharge under the provisions of Section (6)(a) of Rule MAC 16-2.14(10)-S14460.

- authorization under prescribed conditions of short-term construction activities under the provisions of Section (6)(g) of Rule MAC 16-2.14(10)-S14480.

b. Air Quality Bureau

- approval of the Construction Permit under the provisions of MAC 16-2.14(1)-S1400(3) and S1400(11).

- denial of the Construction Permit under the provision of MAC 16-2.14(1)-S1400(12).

- conditional approval of the Construction Permit under the provisions of MAC 16-2.14(1)-S1400(13).

- renewal of the Construction Permit under the provisions of MAC 16-2.14(1)-S1400(7).

D. Alternative Technology

The U.S. Bureau of Mines Western Field Office evaluated the proposed plan of operation at the request of the Kootenai National Forest. The report is contained in Appendix T, Volume II-draft EIS, as well as a discussion of its contents on pages 436-441, Volume I-draft EIS. The Bureau of Mines evaluated the proposed methods of mining, milling, and tailings impoundment as to their feasibility in this situation. They also evaluated alternative methods of mining, milling, and tailings disposal of this type of ore body. A summary of their conclusions is as follows:

1. Mining Method

a. In Situ Leaching

The Troy deposit's low permeability, tabularity, horizontal orientation, depth, and dual metal character make it a highly unlikely candidate for a successful in situ leaching operation.

b. Sublevel Caving

Probably the Troy Project wallrocks would not cave properly, and the relatively flat dip of the ore body would make dilution control difficult, and greatly reduce mining efficiency at the contact areas. Therefore, sublevel caving should not be considered a viable alternative mining method for the Troy Project.

c. Block Caving and Panel Caving

The deposit does not have sufficient vertical dimension to pay for the extensive development work which would be required beneath the ore body to initiate a caving operation.

d. Sublevel Opening Stoping

The maximum dip angle of the Troy Project deposit is not sufficient to allow blasted ore to gravitate freely to the drawpoints.

e. Shrinkage Stoping, Cut and Fill Stoping, and Square Set Stoping

The conditions for which these methods were designed do not exist at the Troy Project, and their high costs eliminate any possibility of using them for such a low grade deposit.

f. Surface Mining

Most of the deposit is too deeply buried to make such a venture economically feasible. In addition, surface mining would have a considerably greater environmental impact than the proposed method.

g. Modification of the Room-and-Pillar System

Innumerable modifications of the room-and-pillar method could be proposed for the Troy Project. These modifications would probably not result in any significant variation in environmental disturbance from the proposed system.

2. Milling Method

Technically, the flotation method proposed for the Troy Project mill is well established as the best means for concentrating the contained copper ore minerals. These processing stages have well established technologies, and it is improbable that any significantly beneficial variation, either economically or environmentally, can be proposed. A discussion of the consideration of direct shipping of the ore, leaching, gravity concentration, milling at a remote location, and underground milling is contained on pages 439-440, Volume I-draft EIS.

3. Tailing Impoundment

Generally the proposed site appears to be well-suited for tailings disposal and the preliminary design is adequate. The USBM, after review of the proposed tailings impoundment, listed comments and suggestions for consideration in the final design of the facility in Appendix T, Volume II-draft EIS.

Dump, heap, and in situ leaching, direct shipping of ore, and milling at a remote location, which are discussed as alternatives to the proposed mining and milling methods would all result in either elimination or displacement of the tailings disposal site.

4. Replacement of Tailing in the Mine

With some modification in mine design, some tailing might be stored underground if the objective were to reduce surface storage requirements. If an underground storage system were initiated, about 60 percent of the tailings would still have to be stored on the surface as a result of expansion of material, inability to fill stopes to the top, and inability to schedule tailings placement and mine production with sufficient efficiency to fully utilize all available storage space. Underground storage might improve the possibilities for a successful pillar recovery program, resulting in improved resource recovery.

5. Extending the Life of the Mine

It is technically feasible to extend the life of the mine beyond the time frames proposed by ASARCO. The question on the extended life of the mine becomes one of economical feasibility to do so.

The U.S. Bureau of Mines used their mine simulation computer program using varying production rates to extend the life of the mine. For all production periods greater than 19 years, the estimated rates of return on the investment were less than 15%. Extended life beyond 19 years was considered economically questionable (Appendix T, Volume II--draft EIS).

6. Development of Alternative Sources of Energy

a. On-Site Generation

ASARCO explored the possibility of on-site power generation with diesel generators and found the cost to be about four times greater than hydro-electric power. Besides prohibitive operating costs, the turbine generation would be noisy and discharge pollutants to the atmosphere.

Sufficient hydrologic head is not available to produce on-site hydroelectric power capable of meeting the power requirements of ASARCO.

b. Alternative Transmission Line Size and Routing

An analysis of alternative transmission line voltages and alternate line routes, as well as a detailed consideration of alternative on-site power generation, is contained in the recently released draft EIS for the proposed 115 kilovolt transmission line associated with the ASARCO Troy Project prepared by the Department of Natural Resources and Conservation and is incorporated by reference into the text of Volume III-final EIS for the ASARCO Troy Project.

IV. PUBLIC AND AGENCY COMMENT

A. Letter of Comment

The following section contains those letters of comment received by the Montana Department of State Lands, and the Kootenai National Forest from the general public, organizations, and other state and federal agencies on the draft EIS for the ASARCO Inc. Troy Project issued June 26, 1978.

Several letters received from individuals were not possible to reproduce in a hand written form. Those letters have been typed and are included in the following section. The original hand written letters are available for review in the participating agencies files.

July 4, 1978
Bob Waldron
1012 Yreka Court
Missoula, MT 59801

July 6, 1978
Northern Lights, Inc.
Wm. T. Nordeen, General Manager
P. O. Box 310
Sandpoint, ID 83864

July 7, 1978
First National Bank in Libby
Bernard J. Remick, President
P. O. Box AP
Libby, MT 59923

July 14, 1978
Northwest Montana Human Resources
Holly Young Bear
Community Development Specialist
P. O. Box 1058
1st & Main Building
Kalispell, MT 59901

Cabinet Resource Group
c/o Laurie Blazich, Secretary
P. O. Box 288
Troy, MT 59935

Department of Revenue
John M. Clark, Administrator
Research Division
Mitchell Building
Helena, MT 59601

July 20, 1978
Historical Research Associates
Gary D. Williams, President
P. O. Box 7086
Missoula, MT 59807

July 24, 1978
Russell H. Hudson
Star Rt. #1
Libby, MT 59923

July 25, 1978
Montana Tech Foundation
Mineral Research Center
J. K. Archibald, President
P. O. Box 3708
Butte, MT 59701

July 26, 1978
Bear Creek Mining Company
R. C. Babcock, Jr., President
Box 9, Dishman Branch
7821 East Sprague Avenue
Spokane, WA 99213

July 27, 1978
Kenneth Haisch
Box 1058
Kalispell, MT 59901

July 28, 1978
Environmental Quality Council
Terrence D. Carmody
Executive Director
Capitol Station
Helena, MT 59601

Philip R. Fikkan
1114 West 20th Ave.
Spokane, WA 99203

United States Environmental Protection Agency
Region VIII, 1860 Lincoln Street
Denver, CO 80295

Received July 28, 1978
Arthur F. Gidel
1155 Kentucky Ave.
Winter Park, FL 32789

July 31, 1978
Conrad National Bank
Eugene O. Gillette, Chairman of the
Board & President
Main and Center Street
Kalispell, MT 59901

Rick Johnson
Box 294
Libby, MT 59923

August 1, 1978
Kathy Johnson
Rte. 1
Troy, MT 59935

James A. Sewell & Associates
Consulting Engineers
New Port, WA 99156

August 2, 1978
Lloyd and Judy Evans
503 California Avenue
Libby, MT 59923

Jean Korte
513 Mineral Ave.
Libby, MT 59923

August 3, 1978
Ann C. German
Attorney at Law
503 California Avenue
Libby, MT 59923

Barbara D. Rhodes
Rt. 1, Box 1945
Libby, MT 59923

August 4, 1978
Beatrice Woessner
Bull River Rd - Box 206
Noxon, MT 59853

Mary Kuntz
Rt. 3, Box 1648
Libby, MT 59923

Mr. & Mrs. Chris Sullivan
Star Route W
Trout Creek, MT 59874

Chuck Dalby
330 Benton
Missoula, MT 59801

August 5, 1978
Sally S. Wauk
Star Rt. #3
Heron, MT 59844

August 6, 1978
Keith Rush
Star Rt., 15A
Noxon, MT 59853

August 7, 1978
Jean Guidry
No address

University of Montana
Raymond L. Gold, Director
Institute for Social Research
Missoula, MT 59812

Received August 8, 1978
Ben Francy
114 Oak
Libby, MT 59923

Jim Banks
Rt. 2, Box 869-P
Libby, MT 59923

August 8, 1978
Nola Sloan
Troy, MT 59935

Jennifer O'Loughlin
518 West Alder
Missoula, MT 59801

Cesar Hernandez
Star Rt.
Noxon, MT 59853

August 9, 1978
Terri Roach
916 - 6th Street
Rock Springs, WY 82901

United National Bank of Libby
Ted Vanover, Exec. Vice President
Libby, MT 59923

Department of Community Affairs
David Cole, Chief
State Land Use Planning Bureau
DCA/Planning Division
Capitol Station
Helena, MT 59601

Rick Johnson
Box 294
Libby, MT 59923

Kathy Johnson
Route 1
Troy, MT 59935

M. H. Daniels
P. O. Box 1475
Trout Creek, MT 59874

Montana Wilderness Association
Mike Comola, President
P. O. Box 635
Helena, MT 59601

Christopher Evans
Box 3874
Missoula, MT 59801

August 10, 1978
Barbara A. Roy
621 Dakota Ave.
Libby, MT 59923

Department of Natural Resources
and Conservation
Wayne Wetzel
Environmental Coordinator
32 South Ewing
Helena, MT 59601

Environmental Information Center
Bob Buzzas
107 West Lawrence
Helena, MT 59601

Honorable A. E. Brown
Mayor of Troy
Drawer S
Troy, MT 59935

University of Montana
Robert R. Curry
Professor - Environmental Geology
Missoula, MT 59812

Laurie Blazich
Box 288
Troy, MT 59935

Rick L. Clark
P. O. Box 567
Libby, MT 59923

John Mohar
Route 1
Troy, MT 59935

Anne L. Oblander
Rte. 2, Box 524
Libby, MT 59923

Joe R. Roberts
Attorney at Law
119 West Fifth Street
Libby, MT 59923

Colleen & Hanah Hernandez
Noxon, MT 59853

Received August 11, 1978
Marshall Warrington, Jr.
Route 2
Troy, MT 59935

August 11, 1978
Karl W. Mote
Executive Director
Northwest Mining Association
West 1020 Riverside Avenue
Spokane, WA 99201

Montana Historical Society
Ken Korte
State Historic Preservation Officer
225 North Roberts Street
Helena, MT 59601

August 12, 1978
Brian Shovers
704 E. Pine
Missoula, MT 59801

August 16, 1978
Barbara D. Rhodes
Rt. 1, Box 1945
Libby, MT 59923

Received August 19, 1978
Cabinet Resource Group
Bill Martin, Coordinator
Rt. 3
Troy, MT 59935

August 21, 1978
Cesar Hernandez
Star Rt.
Noxon, MT 59853

Received August 23, 1978
Kathy Johnson
Rte. 1
Troy, MT 59935

August 31, 1978
Duane Lockard
Homestead Realty
Bull Lake Road at Little Joe
Troy, MT 59935

September 5, 1978
United States Department of Interior
Office of the Secretary
Missouri Basin Region
Denver, CO 80225

September 6, 1978
Department of Health and Environmental Sciences
A. C. Knight, M.D., F.C.C.P., Director
Helena, MT 59601

September 12, 1978
Mrs. Judy B. Hanson
8 Maplewood
Geneseo, IL 61254

September 27, 1978
United States Environmental Protection Agency
Region VIII, 1860 Lincoln Street
Denver, CO 80295

No Date
Steve K. Loken
No address

1. General Public Letters of Comment

July 4, 1978

Gentlemen:

First of all, let me congratulate you on the DEIS for the Troy Project that you sent me several days ago. It's a voluminous piece of work, involving thousands of man hours to gather and put together.

One thing bothers me. Page 306 states, "Presently there appears to be no tendency to generate acid mine water.", and "There is no indication that further development will encounter acid mine waters."

Water has a high buffering capability that protects it from excessively high or low pH changes, but it does have its limits. ASARCO operates on the idea that since their operations to date have not produced acid mine water, their future operations won't either.

I believe this is false. Sooner or later the water resources will become overloaded. Such an incident, and its corrective factors will have a disastrous effect on what I consider a pristine aquatic habitat.

I feel that ASARCO should not be allowed to proceed until they have taken more extensive precautions to prevent mine water from entering the surface waters of the Bull Lake area.

Thank you.

Sincerely yours,

Bob Waldron

Bob Waldron
1012 Yreka Court
Missoula, Montana 59801

Star Route #1
Libby, Montana 59923
July 24, 1978

Mr. Bill O'Brien
Environmental Coordinator
Kootenai National Forest
Box AS
Libby, Montana 59923

Dear Mr. O'Brien:

Thank you for sending me a copy of the E.I.S. for ASARCO's Troy project and asking for comments.

I have two areas of concern that I wish to address.

The first deals with the possibility of water quality degradation of Lake Creek that will come about by three means. One of those will be from the mine and mill operation in the Stanley Creek drainage, another from the close proximity of the tailing impoundment to Lake Creek and lastly the uncontrolled housing development of the Lake Creek valley by new residents will pollute the underground water table and the drainages that eventually form Lake Creek.

The mine and mill sites will be located in steep terrain. All water drainage, of course, is downhill. Any toxic substances that get into the water at these sites are going down into Stanley Creek and Lake Creek as a result.

I favor returning as much of the tailings as possible to mine work-rooms. This would keep the tailings impoundment smaller and perhaps farther away from Lake Creek. The best buffer to keep toxic substances from entering Lake Creek from the spoils is distance. In case of an impoundment failure, distance is the best assurance of keeping waste material out of the creek.

In regards to residential development causing ground water pollution. The residential expansion is already occuring in this area. The quality of this expansion about matches that of the South Libby Flats. The problems will be much the same.

My second area of concern deals with the lack of an economic analysis regarding public services and increased county tax load.

The fact that increased populations require more funds for the services that are provided than the revenue provided through taxation of the land and improvements of this new population. Therefore, the existing tax sources will find an increased tax load to support the newcomers.

The building of Libby Dam and subsequent increased population of the Libby area with a skyrocketing tax load will attest to this. Lincoln County doesn't need a repeat of this.

In closing, I would like to say that in my very biased viewpoint, I see no reason that a permit should be given to ASARCO to develope this project. The world supply of copper and hence a deflated value does not make this operation necessary at this time.

I have a very special interest in living in Lincoln County, namely that we have a low population density. This operation is just another step following Libby Dam to change that situation. Therefore, I urge you again not to issue a permit.

Sincerely yours,

Russell H. Hudson

Russell H. Hudson

RECEIVED
JUL 28 1978
OBPP A-95

BOX 1058
KALISPELL, MONTANA 59901
JULY 27, 1978

MONTANA STATE CLEARINGHOUSE
OFFICE OF BUDGET AND PROGRAM PLANNING
ROOM 221, CAPITOL BUILDING
HELENA, MONTANA 59601

DEAR SIRS:

ENCLOSED ARE A FEW QUESTIONS I HAD AFTER REVIEWING THE TROY PROJECT ASARCO INCORPORATED ENVIRONMENTAL IMPACT STATEMENT DRAFT. I FEEL THESE QUESTIONS SHOULD BE ANSWERED TO THE SATISFACTION OF MYSELF AND OTHERS IN THE FINAL ENVIRONMENTAL IMPACT STATEMENT.

SINCERELY,

KENNETH HAISCH

KH/CA

1. ARE THE FULL EFFECTS OF THE REGENTS DOWFROTH 250, PINE OIL, XANTHATE AND SODIUM HYDROSULFIDE ON THE ENVIRONMENT KNOWN?

2. HOW WILL THESE CHEMICALS REACT TO OTHER CHEMICALS AT THE PLANT SITE?

3. WILL THE 6.8 MILES OF OIL MAT ROAD PRECIPITATION RUNOFF RUN INTO STREAMS OR LAKES IN THE AREA?

4. WILL THERE BE A WATER QUALITY MONITORING STATION TO MONITOR RUNOFF AFTER PRECIPITATION DRAINS THROUGH PLANT SITE?

5. IS THERE A POLICY FOR NATIVE ANIMAL WILDLIFE RECLAMATION?

6. ARE THERE PLANS FOR FURTHER MINE DEVELOPMENT AT STAR GULCH, ROSS POINT, AND SQUAW PEAK?

7. CAN THE AIR QUALITY OF THE CABINET WILDERNESS AREA (3 - 4 MILES EAST) BE GUARANTEED UNOFFECTED FROM DUST, FUEL FUMES, AND NOISE POLLUTION?

8. IN THE EVENT OF A CHEMICAL SPILL INTO STANLEY CREEK, IS IT KNOWN HOW THE CHEMICALS ON SITE WILL REACT WITH OTHER POLLUTANTS PRESENT IN THE DRAINAGE?

9. THE ENVIRONMENTAL IMPACT STATEMENT DRAFT VOLUME 1 PAGE 113, TABLE 11 - 8 SHOWS OIL AND GREASE AT BULL LAKE NO. 12, SOUTH END OF BULL LAKE AND AT SPAR LAKE NEAR CAMP GROUND WHAT IS THE CAUSE AND EFFECT OF THIS OIL AND GREASE?

10. WILL THERE BE ANY EFFECT ON THE ROSS CREEK GIANT CEDARS (2½ MILES SOUTH)?

11. THE E.I.S. MENTIONS THAT THERE WERE 37 DIATOM TAXA FOUND IN THE LAKE CREEK DRAINAGE THAT COULD BE EITHER NEW TO MONTANA OR NEW TO SCIENCE. ARE THE VALUE OF THESE ON THE ECOSYSTEM KNOWN? IF THEY ARE FOUND TO BE RARE, AND ENDANGERED BY THE PROJECT IS THERE A PLAN FOR THE RESTORATION AND PRESERVATION?

12. WHAT IS THE CHANCE OF POLLUTION BY HEAVY METALS IN THE WATER OF THE DRAINAGE? IS THERE AN EFFECTIVE FILTERING SYSTEM AVAILABLE?

13. THE E.I.S. DRAFT (PAGE 167) STATES THAT THE A POND ON CAMP CREEK IS TO BE INUNDATED BY THE TAILING POND, WHAT EFFECT WILL THIS HAVE ON THE NEARBY DUCK AND GEESE NESTING GROUNDS, AND THE BALD EAGLE FEEDING AREAS.

14. IT IS KNOWN THAT HUMAN ACTIVITY NEAR AN OSPREY NEST CAN CAUSE NEST FAILURE (PAGE 172) ARE ANY MEASURES BEING CONSIDERED TO PREVENT THIS?

1114 West 20th Ave.
Spokane, WA 99203
July 28, 1978

Mr. Bill O'Brien
Environmental Coordinator
Kootenai National Forest
Box AS
Libby, Montana 59923

Sir:

As a professional geologist with nearly 10 years experience, I have had the opportunity to review the Draft Environmental Impact Statement for the Troy Project in Lincoln County. I feel that your group has done a commendable job in bringing together all of the complex factors involved when mineral resource development is proposed in an area other than the southwest. Certainly there is a trade-off in allowing mineral development, but the benefits of this underground operation far outweigh the negative aspects.

In developing domestic supplies of raw materials, we will be faced repeatedly with extracting minerals from areas like Mt. Vernon, with high esthetic value. We cannot, unfortunately, will that ore bodies occur in areas with little scenic value.

Acceptance of the current Troy Project EIS is, I feel, a major step forward in providing the necessary balance between natural resource development and preservation.

I urge you to accept the current Troy Project Draft Environmental Impact Statement.

Respectfully,

Philip R. Fikkan

Arthur F. Gidel
1155 Kentucky Ave.
Winter Park, FL 32789

Ralph Driear, Enviromental Administrator
Department of State Lands
Capitol Station, Helena, Montana

Dear Mr. Driear:

After reviewing the DEIS on the ASARCO, Inc. Troy Project I submit the following comments.

Mining and Reclamation of the Troy Project in Lincoln County should not be initiated at any time in the near future.

1) Copper prices are extremely low implying there is no national need for additional copper production at this time.
2) If and when copper prices substantially increase, mining and reclamation alternatives that were economically unjustified at present might become economically attractive.
3) If mining is postponed new technology may be available that could further minimize the ecological impact of the mining operations.
4) Many job positions would be filled by outside labor, indicating that the economic benefits to present local residents would be overshadowed by a general decrease in their quality of enviroment due to both mining operations and miscellaneous pollution due to the population influx.
5) Loss of wildlife habitat due to mining operations and the associated population increase would be significant, especially for Mountain Lion, Mountain Goat, and Bighorn Sheep.

If final permits are to be issued to ARASCO, Inc. at this time, the following apply:

1) Subsurface leakage into Lake Creek from the tailings impoundment is unacceptable. The worst case condition is a 20:1 ratio of natural flow to subsurface leakage. By no means can this be considered negligible; degradation of Lake Creek would result thereby violating the non-degradation statement in the Montana Water Pollution Laws (Reference: p. 107 of the DEIS) There is no "necessary economic social development" that would exempt the non-degradation application of the Law.

   Sealers to prevent essentially all subsurface leakage may be available, especially if the mining is postponed to allow for economic and technological advances.

   Locating the tailings impoundment farther from any tributary is mandatory. Quantitative analysis on removal of heavy metals by natural percolation is necessary before the tailings impoundment is built.

(page 2)

2) Main Audit Alternatives 1 and 2 are not acceptable. Stanley Creek should not be significantly disturbed by mining activity.
3) Any road construction should be designed to minimally affect the surroundings, especially any bridge construction over creeks and tributaries.
4) Topsoil from the Mill Site should be stockpiled for reclamation.
5) At the completion of mining all structures, power lines, and pipe lines should be completely removed. Natural contours should be approximately restored to the mill site.
6) ARASCO, Inc. should be legally bound to reclaim all areas to the satisfaction of the State of Montana and Federal Authorities.

Sincerely yours,
Arthur F. Gidel
Arthur F. Gidel
Resident of Montana 1949 - 1974
Profession: Physics/Electronics
Instructor

Box 294
Libby, Mt. 59923
July 31, 1978

Ralph Driear
Department of State Lands
Capital Station
Helena, Montana 59601

Ralph,

I attended the public hearing on the Troy Project in Libby and spoke on several of my concerns. I wish to reiterate the request many people voiced for a longer comment period.

I have not been able to read the entire EIS. I, like many others, work full time and have many demands on my time. It is unreasonable to expect the public to read and make intellegent responses on a 600 page document in 30 days. I would like to see a 30 day extension. To refuse to grant such an extension would be to dispose of a great deal of time and money(invested into the EIS) as if it were waste paper.

Sincerely,
Rick Johnson
Rick Johnson

August 1, 1978
P.O. Box 840
Libby, Montana
59923

Bill O'Brien
Supervisor's Office
Kootenai National Forest
Libby, Montana
59923

Dear Bill,

Here are my written comments with respect to the ASARCO Draft EIS. First, I would like to say it is well written and very readable. I do feel there should have been more time allowed for review due to the bulk of the document and the late date it was issued. However, I'll do the best I can after one reading.

In general I would like to see good contour maps of all these plans. It would make it much easier to see what is planned for the area, and therefore, easier to analyze. One major problem that I see is that the entire mood of the DEIS biases the reader since almost every paragraph in the Impact chapter (III) ends with a statement such as, "therefore, there will be no significant impacts on the area." I feel the purpose of an EIS is to present facts and let the reader decide the impacts for themselves. Now I will get into the specific details of the statement.

I. Tailings Pond

I feel the designed location of the tailings pond in the Lake Creek flood plain is dangerous. Failure would most likely totally ruin the Lake Creek aquatic ecosystem and also be dangerous to the people living in the lower portion of Lake Creek. There are many people who have moved into the area since the Draft information was collected, and many more moving in all the time. These people will utilize wells as a water source (Vol. I, p. 350), and are in danger of drinking contaminated water if the seepage from the tailings pond enters the ground water. This problem is not adequately spoken to. There are several other problems such as;

1. (Vol. I, p. 61, d.) What peak discharges would these ditches handle? I would like to see a profile diagram of the tailings pond area (with 3 or 4 transects) with the 100 year peak flow estimate of Lake Creek drawn in to see how high up the tailings impoundment structure the water would reach. I would also like to see (in detailed contour map form) what exact plans are being made to prevent a peak runoff flow from Camp Creek entering the tailings pond and possibly washing out the impoundment.
2. (Vol. I, P. 51, 1., (?)) Does the starter dam which "provide(s) for initial deposition of tailing" sit down in the flood plain of Lake Creek? What are the chances of these tailings washing into Lake Creek?
3. (Vol. I, p. 311) I am worried about this potential seepage from the tailings pond as I stated earlier. 1170 gpm is a substantial amount of water if the water quality will be a problem. In Appendix H (Vol. II), Loys P. Parrish states, "As the waste seeps underground it will become acidic and may carry significant quantities of zinc and cadmium." I believe this should be investigated as Lake Creek is a "soft" water system incapable of tolerating pollution, especially metals. I also feel more work should be done on the effects of Dowfroth, Terpineol, and especially Xanthate on a cold water ecosystem. I am sure this is crucial.
4. If this tailings water reaches Lake Creek; a.) Who is resonsible for

monitoring Lake Creek and where will their data stations be? b.) Who will check their (a's) results, and how often? and c.) Would this constitute a discharge into Lake Creek covered by permit?

5. (Vol. I, p. 315, (2)) I feel failure of the tailings dam is a more real possibility than is considered here. As the "(2) Channel Migration" segment (p. 316) states channel migration is a continuing process. I could not find the mitigation referenced in Chapter IV (p. 316). Please include page numbers. Another clue to the instability of the Lake Creek channel appears on page 92 in the last paragraph where it talks about the channel stability of Lake Creek below Camp Creek (where the tailings pond is located).

II. Slurry Line

I feel the slurry line is the weakest design of the project. Some considerations are:

1. Location of the line along Stanley Creek. This seems dangerous and easily avoidable. It is dangerous due to the fact that if a break occurred the slurry would flow directly into Stanley Creek creating a sediment and possible chemical pollution problem. It is avoidable because an alternate path could be utilized (see blue line on enclosed Figure I-17). I would also recommend keeping the line on the upslope side of the access road. This way if a break occurred there would be time and space for the sediment and chemicals to settle out before reaching Stanley Creek.
2. Another concern is the time it would take (therefore the amount of slurry) to shut down the system if a break or clog occurred. Can the stilling wells handle this overflow?
3. The area which has the greatest potential impact is the crossing of Lake Creek by the slurry line. The line should cross on the access road bridge. The line should be contained in an outer pipe (a culvert), and sit in a trough with a stilling well on each side of the bridge capable of containing the maximum volume of slurry expected if a clog or break occurred.

III. Socio-Economic

The exact information needed to effectively consider the alternatives is lacking in this section. I would like to see exactly what we living in the Lincoln county area and Montanans can expect monetarily from ASARCO if this project goes in. I believe it should be in the form of a legal binding contract between ASARCO and Lincoln County, and ASARCO and the state of Montana. I am admittedly "shell Shocked" due to the coal companies challenging the constitutionality of the state coal tax after using the monetary gain to the state via the coal tax to sell Montanans on the eastern coal development. I attended many of those meetings and personally feel ripped off. To speak to specifics:

1. It seems to me the "Industrial Development Tax Incentive Program" does not apply to ASARCO because it will "create(s) a substantial adverse impact on government services" (VOL. I, p. 362) in the Troy area. At any rate Helena should rule on the applicability of this program to this project in the Final EIS so the people of this area know what to expect. The impact of who knows how many people on the Troy area services will be overwhelming with the present local population bearing the financial burden.
2. ASARCO's plan to hire local people is commendable, however, I am skeptical. I do not see any evidence of local people being contacted about their desire to work in this mine. What I fear will happen is a large influx of people after announcement of the development of this ore body. These people will have been living in the area only months to weeks before employment begins, and ASARCO will have no way of knowing whether they are local people or not. I would suggest that ASARCO address this problem in the final EIS, and present a plan to alleviate the problem. For example, ASARCO could begin contacting local employment agencies now and have any local person who is interested in mine employment sign up now, before the influx of outsiders. I also feel a job training program should be initiated.
3. I would now like to address a problem which is very hard to quantify. That is the "Quality of Life". I realize it is difficult to effectively address in an EIS, but the fact that the majority of people contacted in the T.A.P. survey stated their main reasons for living here was the enviornment and small town setting says something about our love of this area as a whole. I take offense to the entire "Quality of Life and Social Values" section (p. 349). Besides the fact that the impact of the mining development was not even considered what is presented is all hype, especially the water pollution paragraph. This section should be totally redone properly this time.

There is one more consideration which was raised at the public meetings which I think is worth mention in the final EIS and that is bus service for all mine employees. I think ASARCO should provide bus service from Troy, a tailings pond area parking lot, and , if necessary, Libby. This would save gas, minimize wildlife-human conflicts, and cut down on dust and accidents.

That is all I saw in my once over. I am sure you are just as happy there is no more. I will look forward to the final EIS, and hope all these concerns are presented.

Thank YOU for your time!

Sincerely,

Bradley B. Shepard

Bradley B. Shepard
P.O. Box 840
Libby, Montana
59923

Rte 1
Troy, Montana

August 1, 1978

Ralph Driear
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Ralph:

First of all, from what I've read so far of the ASARCO EIS, I'd like to congratulate you on you coordination of a very well written, easy to understand statement.

But, to get down to the specifics of the issues at hand, I, & I feel most citizens, can not possibly do a thorough job of assessing the impacts & discussing the facts with technicians & authorities in each field. It seems a tragedy to me to produce such a carefully written & expensive document to allow citizen participation & then to only give us until August 10 to study it.

Therefore, to unable citizens to fully partcipate in the decision-making process as intended under MePA, I request that you grant us an extension of 30-days.

Kathy Johnson

8/1/78

Dear Mr. Driear:

Although I received the EIS for ASARCO as soon as it became available to the public, August 10 is approching much too rapidly for me to do an adequate job of evaluating it.

In particular, there are several points in the water quality section which require further research; so I ask that you extend the deadline for comments.

Sincerely,

John Molen
Route 1
Troy, MT.
59935

Electrical Engineering
System Studies
Power Analysts

Civil Engineering
Sanitary Engineering
Land Surveys

Robt. E. McLean E. E.
Branch Office
710 Hutton Bldg.
Spokane, Wash. 99204
509-747-5794

JAMES A. SEWELL & ASSOCIATES
CONSULTING ENGINEERS
NEWPORT, WASHINGTON 99156
509-447-3626

James A. Sewell C.E.
Fellow A.S.C.E.
Newport Office

August 1, 1978

RECEIVED
KOOTENAI
AUG 7 1978
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Mr. Bill Obrien
Environmental Coordinator
Kootenai National Forest
Box AS
Libby, Montana 59923

Dear Bill:

We have viewed the draft of the Environmental Impact Statement for the Troy Project of Asarco, Inc., Lincoln County, Montana and it appears that the drafters have done a fine job in assessing the impact on the environment. We believe that this project will be a credit to all those people involved in preparing the design and the assessment of the environmental impact. We believe that this shows a true spirit of cooperation providing for a new industry in the area. We believe this project is very important to the general area of Troy as well as to Lincoln County and should be an asset for years to come.

We again wish to compliment you and the others who have worked on the statement for a fine assessment of the impact.

Very truly yours,

JAMES A. SEWELL & ASSOCIATES
Consulting Engineers

By Jsm
James A. Sewell

JAS:mm

cc: File

August 2, 1978
Ralph Driear
Helena, Montana

Mr. Driear:

While going over the recently available ASARCO publication I became painfully aware that I just don't have time to even read it through. Let alone . . examine important points and do my own investigative research on certain key issues.

I appeal to you to grant an extension on this matter. Thus allowing all of us conscientous Lincoln County residents that already have full enough lives with families and jobs to have a little more time to study, in depth, this very controversial issue.

Even a 60 day extension would allow a better absorbtion of this intense, slow reading subject matter.

Thank you in advance.

Sincerely,

Jean Karte
513 Mineral Ave.
Libby, Mt. 59923

503 California Avenue
Libby, Montana 59923
August 2, 1978

Mr. Ralph Driear
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Driear:

I write this letter in prostest to the requirement that comments of interested citizens be made in the Troy-Asarco matter by August 10, 1978.

There is no way that the Draft Environmental Impact Statement and allied investigation can be accomplished in the short time we have had access to them.

Therefore, we request that your Department extend the period of comments.

Sincerely,

Lloyd Evans Judy Evans

Lloyd and Judy Evans

ANN C. GERMAN
ATTORNEY AT LAW
503 CALIFORNIA AVENUE
LIBBY, MONTANA 59923
406 - 293-4043

TO Ralph Driear
Department of State Lands
Capitol Station
Helena, Montana 59601

DATE August 3, 1978

SUBJECT ASARCO EIS

Dear Ralph:

I am writing to request that you extend the period for public comments on the ASARCO Draft Environmental Impact Statement.

You are to be commended on your job of coordinating the statement. It is well-organized and has good readability. However, for most citizens who work at full-time jobs, such as myself, it is impossible to read the statement, assess the impacts, and make comments in the alloted time period.

It has taken your Department a year to put this information together; citizens should be given more than 30 days to study it if you wish meaningful citizen participation in the decision of whether to issue an operating permit.

Sincerely,

Ann German

Ann C. German

Form MI 5 N72 The Drawing Board Inc Box 505 Dallas Texas

Re: ASARCO EIS
August 3, 1978

Dear Ralph:

I am writing to request a generous extension on the public comment time frame. It is very difficult for interested individuals to review and make quality comments addressed to the specific points brought up by the environmental impact statement. I am finding the document easy to read, but I feel I need more time to become better acquainted with some aspects of the material.

Thank you

Sincerely,

Barbara D. Rhodes

August 4, 1978

Leo Berry / Commissioner
Dept. of State Lands
Helena, MT 59601

Dear Mr. Berry,

As six days remain for public comment on the ASARCO mining company's EIS for their Troy Project we must express our concern. We feel the 45 day comment period is incredibly short for the public to be able to read and comprehend a statement of such length and subject matter.

More discouraging is the fact, that, upon reading more than one half the document, it appears more time should have been spent in compiling it also. Much of the information offered is either incomplete or non-conclusive.

Many questions arise as to the cumulative effects the project will have on air and water quality, wildlife, etc. But of primary concern is the question of the social and economic impacts the Noxon - Heron area will receive. Why was this not addressed in the EIS? We also question ASARCO's ability to meet environmental standards in the future as during their exploration activities water discharge controls have already been violated.

These questions need more time and information to be addressed and answered for and by the public. Please do everything you can to extend this comment period passed the Aug. 10 deadline. Thank you.

Sincerely,

Mr. & Mrs. Chris Sullivan

Noxon - Montana
Bull River Rd.
Aug-4-1978

Dear Sirs:

I attended your Noxon meeting - I also gave at that meeting reasons for not wanting the silver mine as planned - (Air-Water-people pollution)

To recap some of my thinking - I sincerely believe someone truly missed their homework when they stated 300 men working - If they would be totally honest they would state - Beginning Crew 300 - with an average family of 3.3 people = 1000 people - To be absorbed into a relatively restricted area - For these 1000 - people there would be another 2,000 people move in (workers with families) to care for the needs of the first 1000 people -

Then lets Cap this by saying 900 men work in the mines and bring families = 4,000 people with approximately the same raise in services = 6,000 Totaling 10,000 people + How this doubles the total population of the Sanders County at present +

Where is your planning for all of these people?

Sincerely

Beatrice Woessner

P.S. = 2½ yrs to make 2 big books and 2 weeks for us to read a digest? - Ridiculous! -

1 - City planning board in the entire area? Who does the planning for Troy - Bull River - Heron Noxon - Trout Creek -?- No one -!-
Who will monitor air pollution? -
Who will monitor water pollution? -
Who will patrol the National Forests to keep pleasure seekers - hunters - careless new comers from rapeing - burning & killing wildlife -?

It is said "The Beauty of Bull River is greater than Glacier Park -" "Quiet and peacefull -" I agree -!-

Where is this precious mineral going? -
Is it necessary to mine it? - For us or for Foreign powers?

In closing I would like to say - "Man has destroyed in the last 200 years - more natural resources than any other man has done in the last Million Years - Isn't it time to stop - look - listen - and keep our money banked in its own Rocky Mountain Vault?"

B.W.

Rt. 3 Box 1648
Libby, MT 59923

August 4, 1978

Ralph Driear
Dept. of State Lands
Capitol Station
Helena, MT 59602

Mr. Driear,

I would like to express my disappointment concerning plans for the ASARCO Mine in the Troy area.

On page 379 of the Draft Environmental Impact Statement, it states: "Considering all elements studied, the (effect on) quality of life in the Troy area with Mine development is overall determined to be negative. . . . "

As citizens of the United States of America, we are striving for a positive quality of life.

Please consider the following as striving for a positive future.

1. The size of the tailings pond should be reduced by putting the tailings back into the mine (a 40% reduction is possible).

2. Given that up to 1,100 gallons per minute might seep out of the tailings pond and into Lake Creek, it is only reasonable that a discharge permit be required for the tailings pond.

3. "failure of the tailings pond would have serious to catastrophic water quality impacts." (p.315) "The probability of such a failure. . . . is unknown." (p.304) ". . . the possibility for failure. . . must certainly not be ignored." (p.307) There are faults between the mine site and the tailings pond site. On page 301 it says if they become active, potential sizable earthquakes can be anticipated in the Troy area." (p.36)

Also to be considered is the impact on the high proportion of elderly people living on fixed incomes in Troy. This was not adequately addressed in the Draft Environmental Statement.

These are only a few of the negatives of the ASARCO plan. Much more should be reconsidered.

As a representative of the people I expect your protection from such negative directions in a community.

Sincerely,

Mary Kuntz

August 4, 1978

Mr. Ralph Driear
Environmental Administrator
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Ralph:

A great deal of information has been assembled in the Draft EIS for the Troy Project, and I feel that a 45 day comment period was inadequate to fully evaluate the EIS. Basically, the EIS was well organized and written; however, it suffers a fault common to most documents of its kind, that being that it probably does not fully assess the impacts of the project. This is partly due to the limited nature of baseline data available for synthesis, which means that a variety of assumptions must be advanced in order to evaluate impacts and that simplified models are used for decision making. It is also partly due to the fact that limiting factors (such as seismicity) in the analysis of tailings pond and pipeline design and safety were essentially ignored. The following comments are addressed to specific portions of the EIS which I feel need further consideration.

1. Where is Figure II-18 as referred to on Page 67 of Volume I?

2. From a comment made on Page 67, ("Should initial revegetation attempts fail") it seems that reclamation of the proposed tailings pond is not a certainty. A similar comment on Page 69 with reference to the purposes of an experimental tailing impoundment ("to research the effect of tailing material on plant growth...") indicates a further lack of prior knowledge of the success or failure of proposed reclamation.

Thus, the outcome of reclamation of the tailings pond area is something which is uncertain, but yet it is tacitly assumed in several parts of the DEIS that it will succeed. For example, on Page 399 (under e. Water Resources) it is assumed that only small quantities of water will percolate through the reclaimed pond.

3. Will the post mining hydrogeologic make up of the tailings pond area be conducive to growth of native vegetation as well as that proposed for reclamation? What will be the long term effects of sorption of waste metals (and byproducts) onto the clayey soils in the vicinity of the tailings pond? Will this affect long term site productivity as well as local ground water quality?

4. On Page 85, it was noted in a very superficial analysis of the seismic hazard to the area, that sizeable earthquakes may be anticipated in the Troy area. In light of that and the fact that seismic hazards are generally a limiting factor in risk analyses, it seems that a more detailed analysis of the seismic hazard should have been undertaken.

Norman Rasmussen, in his seismicity study for the Corps of Engineers on the Libby Additional Units and Reregulating Dam (General Design Memorandum, Phase II, 1975), states that one could expect a 6.5 to 7.0 magnitude (richter) earthquake about every one hundred years in the Flathead Lake sub-province of the Northern Rockies, which includes the mine site area. He also concludes that if lack of local fault activity can be demonstrated that the approximate design earthquake for the Reregulating Dam would be 5.0 to 5.5 magnitude with an acceleration of 30 to 40% of gravity. Further, if local fault activity seems probable, (based on geologic fault studies directed toward determining last age of movement and probable future movement) then the design earthquake would be 6.5 to 7.0 magnitude with accelerations of 70 to 90% of gravity.

In the same report (LAURD, General Design Memorandum, 1975) David Slemmons, in his fault study, mentions the possible activity of the Bull Lake fault which passes within four miles of the ASARCO mine site. According to Slemmons, J. T. Pardee (in a paper "Late Cenozoic Block Faulting in Western Montana", Geol. Soc. Bull. V. 61 P. 360-404, 1950) indicates that the Bull Lake-Lake Cr. trench was formed by normal faulting in pliocene to mid quaternary time, with possible holocene reactivation of the Bull Lake fault. Slemmons also notes the presence of a 60 foot holocene scarp along the Bull Lake fault in the Lake Cr. Valley near Crowell Cr. Whether the scarp was due to recent surface faulting of differential erosion was not resolved.

Seismic hazards are a critical limiting factor in the design and subsequent safety of the actual mine as well as the environmental safety of the tailings pipeline and pond. Thus it seems that a separate analysis of historical seismicity of the area, as well as geologic investigation of local faults (such as the Bull Lake fault) to demonstrate their inactivity or activity should be carried out. This would allow the determination of a reasonable design earthquake (with certain accelerations) for the site. This value should then be incorporated into the design of facilities which may have dire safety or environmental consequences (i.e. mine, tailings pipeline, tailings pond).

If local fault activity is probable then the usage of the .1 to .4 g value in determining the mine safety factor of 2.7 as done by the U.S. Bureau of Mines, ASARCO DEIS V.II, Appendix T) may not be valid.

5. In the section on the fluvial geomorphology of Lake Creek it is noted that the reach of Lake Creek North of Bull Lake varies in terms of channel stability, but that a high sediment transport rate and tendency to braid are common. Also the comment is made that "Lake Creek experiences minor channel changes frequently" (Page 97, Vol. I).

Thus, it seems that the tailing pond site might be subject to encroachment by Lake Creek as a normal course of long term lateral channel migration, as well as by overbank flows during high peak flows. Also several of the proposed locations for the stripping stock piles (Figure 4, P. 5, Vol. I) appear to be located in close proximity to Lake Creek. Will there be sedimentation problems due to these?

Is it anticipated that river control measures will be needed (such as channelization by rip-rap) will be required to enhance the integrity of the proposed tailings pond. If so, what would the impact of that be on the downstream hydraulic geometry and stability of Lake Creek?

6. On Page 98 of Volume I the statement is made that "Lake Creek has the competence to transport any material potentially released to it from mining and related activities." This statement may be misleading. The competence of a stream is a measure of its ability to move material of particular size as bedload, and is defined as the largest size grain that a stream can move in traction as bed load.

This does not necessarily mean that Lake Creek will accept any increments of sediment due to mining and related activities and transport them through the channel system. The capability of a stream to move a given volume of sediment as bed load is called stream capacity. Capacity varies largely as a function of stream power. If stream capacity is exceeded aggradation takes place initially and the channel geometry will eventually change to accommodate the increased sediment flux.

In streams, such as Lake Creek, if discharge remains constant and sediment load is increased. The width of the channel and channel gradient will both increase in order to accommodate the increased sediment load. Thus, if significant amounts of sediment are added to Lake Creek (or Stanley Creek for that matter) as the result of mining development, one would expect progressive downstream changes to occur in the hydraulic geometry of the stream system.

This type of change could occur if either the amount of bed load or suspended load supplied to the stream were increased. Below certain levels increases in the amount of suspended load will cause a corresponding increase in stream power (by increasing viscosity of the fluid mix) and thus may increase the erosive power of the stream. Increase in bed load supplied to the stream would be reflected in increased channel widening and increases in stream gradient.

The point is that if one alters the characteristics of the natural supply of sediment to the channel, the dynamics of the channel system will change and this change will be reflected in altered downstream channel geometry. The sediment load to Stanley Creek and possibly Lake Creek will surely be increased as the result of mining activities. The amount by which it increased was not adequately assessed in the DEIS, thus the impact of mining on the fluvial geomorphology of Stanley and Lake Creek was not adequately assessed.

7. On Page 98 V.I a line reads,"Because channels are already changing to accommodate increased loads, further channel widening would be expected if significant amounts of new sediment in gradient as they enter the valley floor of Lake Creek." This is poorly written and I am not sure what it means.

8. The chemistry of water draining from the north adit does not indicate problems with acid mine drainage and even shows a moderate buffering capacity due to bicarbonate concentration. Iron sulfides are known to occur in local concentrations in the Revett Fm. from which the proposed mine will extract copper and silver. One possible explanation for the non-acid chemistry of water draining the north adit is that it simply did not encounter a FeS_2 concentration. This does not necessarily mean that there won't be any problems with acid mine drainage in the rest of the proposed mine.

Two important points should be recognized. First that quite often the effects of acid mine drainage do not show up within the early developmental stages of a mine. Second, that the acidity of mine water is dependent on complex EH and Ph characteristics of the groundwater draining the mine, the initial chemistry of the water, the mineralogy of the rocks being mined and the area of mined rock exposed to oxygen and groundwater. Rough calculation indicates that about 49,600 sq. ft. of subsurface mine area was exposed in the north adit up to the time of water sampling. Similar calculation of the total area to be exposed during the mine life is roughly 27,700,000 sq. ft. Thus about 500 times the area of the north adit will be exposed during the course of the mining operation. This does not include individual fractured faces on extracted rock fragments.

Considering the possibility of encountering local areas of iron sulfide concentration during the course of mining and the fact that a much larger surface area of rock will be exposed to oxidation, it seems the assumption that north adit mine water chemistry is representative of the long term water chemistry is not strictly valid. The point is that acid mine drainage is a possibility with the Mt. Vernon project and mitigating measures should be considered if it does occur.

9. It appears that no samples of groundwater were taken for chemical analysis. If such is the case I would recommend that samples be taken before mining, especially in the tailings pond area, and area surrounding the mine. This would then provide a baseline from which to determine the affect of mining and associated activities on groundwater quality of the area. In the area of the tailings pond such measurements would allow for assessment of groundwater contamination as a result of seepage.

10. On Page 305 of Volume I the assumption is made that since Stanley Creek has much larger flows than the maximum proposed increment contributed from the adit (5.57 cfs), that there will be little impact to Stanley Creek. In terms of channel geometry this is probably true. In terms of water quality it may not be.

Assuming a worst case 5 cfs discharge from the mine and a Stanley Creek base flow of 1 cfs, the concentration factor would be 5:1. If acid mine drainage becomes a problem, the dissolved solids of the resultant mine waters would increase. Treatment of such mine water (as proposed on Page 306) would not remedy this and damage could occur to the aquatic ecosystems of Stanley Creek and perhaps Lake Creek.

11. Is enough known about the nutrient dynamics of Stanley Creek and Lake Creek to safely allow a 15 to 20 mg/l increase in nitrogen?

12. On Page 307 there is a statement to the effect that "water from the major water courses ... will be captured at the plant site and...returned to its natural drainage."

And, on Page 308, "natural drainages tributary to Stanley Creek at their diversion around or through the plant may have some changes in their gradients and may cause some minor erosion and sedimentation in the main stream...it is anticipated that this would be a very minor water quality problem."

Mine site developments in this area are located within soil units 2 and 4 (as indicated on soils map, Page 89) which are described as outwash deposits and glacial till. Most of the development takes place in soil unit 4 which is glacial till on steep to very steep slopes (30 to 60%). Because of this it can be anticipated that significant erosion and subsequent transport of sediment to Stanley Creek may occur as a result of this development.

The fact that surface water will be collected and diverted around the site does not negate this possible impact. In fact, collection, diversion, and subsequent reintegration of surface waters into Stanley Creek may cause additional problems. If the collection system concentrates surface water run off then adds it to the stream system at certain points, it can be expected that the channel geometry downstream of those points would change to accommodate the increased flows (the net amount of water added to the channel over time probably would not change greatly, but more water would run off in a shorter period of time from any given rain or snow melt event and thus magnitudes of flows would increase).

The net effect of the mine development on the equilibrium of Stanley Creek is difficult to assess, but it is conceivable that the sum of many small land surface alterations could disequilibrate the head waters of the creek over a period of years. This in turn would affect aquatic and terrestrial life dependent upon Stanley Creek. Because of this it seems that an attempt should have been made to evaluate the overall effect the project on stability of the Stanley Creek watershed.

13. On the bottom of Page 313, Vol. I a reference to water quality section, Chapter III is made. Thus the water quality section refers to itself -- perhaps a typo?

14. Much of the discussion in Chapter III, Section e. on Water Quality is based on the assumption that the chemistry of a bulk sample run through the flotation/separation process is representative of waste water sent to the tailings ponds. This may be the case, but to assume that the results of such a test accurately reflect the time variable chemistry of the waste contained in the tailings pond seems tenuous. This assumption neglects the possible interaction between chemical constituents in the pond over time which may lead to formation of ion complexes not anticipated as well as the results of other complex chemical reactions which will determine the equilibrium concentrations of the various chemicals in the pond. A more detailed assessment of chemical process occurring in the tailings pond should have been made.

15. On Page 313, Vol. I reference is made to the 7 day, 10 year low flow for Lake Creek. Because of insufficient flow data it was not possible to calculate this discharge so a flow of 50 cfs was assumed to be a representative value. Once assumed then this flow was used to assess the affects of tailings seepage upon the water quality of Lake Creek. Using a 20:1 dilution ratio itis hypothesized that the affect of tailings pond seepage on Lake Creek water quality will be minimal and the resulting ionic concentrations will be well within limits. This assumes, of course, that there will be complete mixing of introduced ions which may not be true.

If one reduces the estimate of the 7 day 10 year low flow to 25 cfs, then the resulting ion concentrations listed in Table III-2 (Page 314) will double. This would put silver, cadmium, copper, molybdenum, and zinc concentrations close to or over the acceptable limits listed in Table III.

If the 7 day 10 year low flow is being chosen as a design or illustrative flow value for water quality calculations then an attempt should be made to derive it statistically. It is not a safe assumption, based on 4 years of flow measurement, that the lowest flow is the 7 day 10 year low flow. (It may be less than or even greater than your assumed value). One way to approach this would be to regionalize low flow characteristics and extrapolate the low flow value for Lake Creek.

Summary

With the comments made on the previous pages in mind, I do not concurr with many of the conclusions arrived at in Chapter III Sections D, E, and F. It appears that the proposed ASARCO project may have a significant short term impact on the areas water resources through effects of increased erosion and subsequent sedimentation, through possible disequilibration of the Stanley Creek stream systems and through alteration of existing water chemistry. Should these effects be realized, aquatic productivity would be substantially impaired.

With the mining developments (as proposed) in the Mt. Vernon area fully realized, a substantial earthquake (producing high local accelerations) could cause failure of the tailings pipeline due to ground shaking, failure of the tailings pond by seiche, and create mine safety problems. The combined environmental impact of this would be substantial.

Long term impacts of the project to water resources depend largely on the success of watershed restoration and reclamation efforts, the post mining quality of water moving through the area, and the ability of the affected portions of Stanley and Lake Creek watersheds to recover from mining activities. Given the depth of analysis undertaken in the DEIS, it does not seem that the long term impacts (or irreversible and irretrievable commitment of resources) of the project were adequately assessed.To remedy some of these shortcomings I would suggest that the following are undertaken:

1. Regional and site specific analysis of earthquake hazard for the area, to determine probability of large earthquakes occurring in area. Specific attention should be given to local fault systems -- Bull Lake fault in particular.

This analysis should then be used to determine design earthquake for project. Impacts to area as the result of an earthquake should be addressed.

2. A more detailed analysis of the overall project impacts on stream dynamics and watershed equilibrium should be carried out. Rather than looking at each small impact, the net affect on the fluvial system should be addressed.

3. The possibility of acid mine drainage problems should be further explored. Impacts of possible acid mine drainage on the Stanley Creek - Lake Creek stream system should be discussed as should the possible mitigating measures.

4. The probable time varying equilibrium water chemistry of the tailings pond should be modeled. These values should be used in assessment of the impacts of the pond on local water quality.

5. Regional low flow characteristics for Stanley Creek and Lake Creek should be modeled and used for comparison with estimated values.

I fully realize the amount of work which goes into a document of this scope and appreciate the time frame within which data must be collected and analyzed. Clearly everything cannot be looked at. I also feel that the conclusions of such an EIS should accurately reflect the degree of certainty expressed in the line of reasoning used to arrive at the conclusions. Such is not the case with this DEIS in its present form.

Thank you for the opportunity to comment on the study.

Sincerely,

Chuck Dalby

Chuck Dalby
330 Benton
Missoula, Montana 59801

August 5, 1978

To: Montana Dept. of State Lands
Re: EIS for Troy Project, Asarco, Inc.

Dear Commissioners:

As a resident of Heron, Montana, (Sanders County), I have recently received the environmental impact statement for the proposed Asarco mine in the Bull River area. The mine is located approximately 25 miles from my residence, so I am very interested and concerned about its impact on the area.

I find the information presented in the two-volume EIS to be vast and complex, and my immediate reaction is that, yes, indeed, the mine is going to have an enormous impact.

I am distressed that I am expected to assimilate, and respond to this information, within days of receiving the EIS. (The final draft is to be published in September.) I find this preposterous, given the scope of the project, and the complexity of the information so far assembled. I therefore urge you to extend the deadline for public response, so that the response can be thoughtful and informed, rather than superficial; the right questions can be asked - and answered; and the final EIS be as complete and accurate as possible.

I am sending copies of this request to all the individuals and agencies whom I assume have the authority to extend the deadline. I would like at least, a 45-day extension.

I would also very much appreciate a written response from you, concerning action on this matter.

Sincerely,

Sally S. Mank
Star Rt. #3
Heron, Mt. 59844

August 6, 1978
Bill Obrien - Project Coordinator
Kootenai National Forest

I would like to comment on the environmental impact statement prepared for ASARCO's Troy Project. First I would like to complain on the short time period (45 days) granted to read such a lengthy and technical document. It is an almost impossible task, for someone who has to work 8 hours a day to accomplish this. As for the information contained the document itself, I was disturbed at the almost total disregard for the Noxon-Heron area concern. Social impacts from this project, should this project go through, these would be large, lasting social implications affecting this Noxon-Heron area. For this reason I sugest an addendum to the existing EIS which concerns itself with the problem. I am also upset with the water quality section discussed in Chapter III, in section d Tailings Impoundment and Water Qualtiy. In section d, which is concerned with water seepage through the tailing impoundment, it is quite evident that no one has any idea what the seepage rate or extent is going to be. A figure of 1170 gmp is finally derived at. How? By guessing from the many varied methods described in previously in section d. What happens to ground water quality when lethal constituents such as arsenic, mercury and lead build up and are concentrated after 16 years of seepage? When the generalities of section d (subsequent seepage into Lake Creek also should have little impact on water qualities.....) are couplied with the generalities of section c (based on the quality of water anticipated in the tailings pond and assuming no dissolution of metal from the tailings and no sorption of metals on materials beneath the tailings pond, and an assumed seepage rate of 1170 gpm....) one is left wondering. Can permits really be granted with no more concrete data or statements than the ones exhibited in these two sections. Arsenic, lead, mercury, floride are lethal at differing concentrations, we must be assured not assumed that beneficial organisms are not going to be poisoned or their habitat contaminated to the point that they must leave or perish. Water quality is one of three areas (along with air quality and reclamation activities) which must be ensured before the project can begin, so please lets address this issue with conrete statements no generalities. As far as the Air Quality section of Chapter III is concerned, there are still no definite statements, but more generalities. These increases would be expected to be short term in nature confined to the immediate area of the mine. How long is short term? How much area does the immediate mine area cover? Will this affect the #1 air quality standard of the Cabinet Mountain Wilderness area across the Bull River? These are some of the questions which present themselves during the very limited time I had to review the EIS. I hope that they are addressed before it is too late.

Thank You

Keith Rush

August 7, 1978

Ralph Driear
Department of State Lands
Capitol Station

Dear Sir:

I will begin my comment on the DEIS with two complaints. First, in order for me to achieve a comprehensive and complete knowledge of the DEIS, I need more time than that afforded by the August 10 deadline.

Second, there is some confusion as to the purpose of the EIS. It seems a waste of the taxpayers money and the state's time for MEPA to require an EIS when in actuality it cannot enforce any sort of environmental protection and the EIS will merely be used as a reference volume by the State. It seems to me that protection of the environment involves many more facets than just air and water quality, as provided for in the limited scope of the Hard Rock Mining Act. Quality of human life, other animal life, earth life, social life, and economic life are a few that come to mind. And these must be considered in terms of generations, even centuries, not just the next ten or twenty years. MEPA is a good step in this direction. Our government is supposed to be of, by, and for the people, not of, by, and for the corporation. Therefore it must look out for the interests of the people. So an act such as MEPA that is directly responsive to the public and its needs should be implementable. What good does it do the American people to have a watchdog that has no teeth?

Concerning the material in the DEIS, the first thing that I am most concerned about is the question of geological stability in the area of the proposed mine. Lake Creek meanders widely, accompanied by a great deal of bank erosion, and the roads in the area are subject to frequent slippage. It appears as though the mine, the access road, and the tailings pond are going to be placed on geologically unstable sites. There is no reference that I could find to increased soil erosion that will result from construction of the mine, road, and pond and from increased activity in general. Temporary turbidity of the water is mentioned as a possibility, however soil erosion is a continuing, cumulative process.

Furthermore, the area has several seismic faults that are very likely to become active at some time. Since failure of the tailings pond could have "catastrophic water quality impacts" (p.315), it seems that a possibility of this nature surely should be addressed more thoroughly than a casual comment.

Further on the subject of water quality, I would like to interject here that I highly favor the possibility of returning tailings back into the mine, thus reducing the size of the tailings pond as much as possible and leaving a larger corridor for wildlife movement. Also, since as much as 1100 gallons of water per second may seep out of the pond into Lake Creek, I think a discharge permit should be required of the mine.

Another subject that the DEIS treats lightly is the effect that the chemicals in the tailings pond will have on each other and on the water table

as they filter out of the pond, especially what effect their cumulative build-up will have. The DEIS states that the reactions are unknown and then that no impacts are expected from this. I think that this assumption is not valid, if not downright naive, and that the effects of these chemicals should be researched more thoroughly.

Air quality is another subject that does not seem to be adequately addressed. There will be a great increase in traffic, especially heavy vehicle traffic. It is claimed that the deterioration in air quality will be short term and therefore not "significantly adverse." (p.394) Breathing the air is an immediate need for everyone and cannot be avoided while waiting for the air to clear from the mine construction, road construction, pond construction, ore trucks, and general all around traffic increase. Also, I found no mention of the thermal inversions that occur in this area and can greatly multiply the effect of suspended particles in the air.

Another aspect that the DEIS does not address is the effect that this project will have on Noxon, Heron, and that end of the valley.

In addition to that oversight, I think that the Statement greatly underestimates the increase in demands on services that this project will bring. Rather than bring in many people for a relatively few years, the life of the mine could be lengthened, thereby bringing in fewer people over a longer period of time. This is a possibility not addressed in the DEIS. It may not be very profitable for the mining corporation, but remember that the state is concerned with the welfare of the people, not of the corporation. Another possibility here is that the mine prepay its taxes to help public services in the area handle their increased load.

Finally, I think that a bussing system should be set up from a central parking lot on the Bull Lake Road to the mine. This would have many benefits. It would reduce the size of the parking lot needed at the mine site, keep the amount of traffic on the access road down to a minimum, reducing wear and tear on the road, and reduce wildlife encounters and mishaps, possibly discouraging misuse of firearms.

Thank you very much for listening to the public.

Sincerely,

Jean Guidry

Dear Sir,

I am writing to you concerning the proposed mine near Bull Lake in Lincoln county. I think it would be a tragic mistake to allow this mine to be established. The area around Bull Lake and Ross Creek Giant Cedars is one of the most beautiful in the area and it would be wrong to even take a chance of ruining it by allowing this mine to be built.

It is a fallacy to think that the mine would provide jobs for the area. What it would do would be to bring in more people and trailers, two things we don't need! Thank you

Sincerely,
Jim Banks
Rt 2 Box 869-P
Libby, Mt. 59923

Troy, Montana
August 8, 1978

Ralph Driear, Environmental Administrator
Department of State Lands
Capitol Station, Helena, Montana 59601

Dear Mr. Driear:

Since residents in the area of the contemplated ASARCO mine have been invited to make comments regarding the operation of the mine I submit mine.

The first thought that occurred to me when ASARCO was first mentioned was the possible adverse effect on our beautiful little valley. It still bothers me despite assertions to the contrary and despite optimistic claims of increased employment and tax gains needed in our deprived economy. I feel that our valley's chief assets are scenic beauty and an environment that favors relaxation. To bring heavy industry into this fragile area may change its whole character- its uniqueness. About four years ago, thinking in terms of Troy's economic needs and yet not willing to detract from the attractiveness of the place for its present and future inhabitants, a number of us suggested encouraging tourists.

Possibly, we thought, tourism would fulfill our needs and still we would retain the beauty and tranquillity of our surroundings. We were told that such had been accomplished in Leavenworth, Washington. As a beginning we established Troy's Museum and Visitors Center which has been growing and gives evidence of accomplishing some of our goals. Our area is being constantly admired for its beauty by those who stop and talk to us and they often admit they would like a home here now or in the future. Admittedly it is especially suitable here for retired people, and retired people usually have money and don't need jobs. Thus Troy's economic requirements could be met without sacrificing pure air and water and forested mountains.

I have read from the volumes on Environmental Impact Statement regarding the ASARCO project and I am aware of certain questionable results if the mine permit is granted.

1. The surrey pipeline might be responsible for contamination, especially

if earthquakes occurred (history indicates sizable ones in the past).

2. There would be adverse effect on wildlife. It is inevitable that goats, moose, bears, birds would be scattered; fish might be poisoned. Thus, fishing and hunting, top recreational opportunities, would be affected.

3. Sudden increase in population by the unemployed and just as sudden emigration after the mine shut down would be only a temporary help for Troy financially, in the long run a hindrance to development.

4. Air and water pollution is something to fear. Air pollution is particularly likely in a valley surrounded by mountains. Water pollution seems highly probable from tailings so near two of our small streams.

5. Economic aid to our community seems questionable taking into account extra expenditures for schools, for policing, for road maintenance.

These and other points will no doubt be made in other communications to you.

I would like to add one more comment. If permit is granted in spite of objections that are raised I would like to see damage minimized as much as possible by severe restrictions on the structure and operation of the mine,- tailings in part put back into the mine, the life of the mine extended which would also extend period of employment, reclamation of land, people and wildlife to past conditions, prepayment of taxes instead of postponement.

Still there is one more troubling thought. I understand there are further ambitions of mining companies - prospects around Bull Lake, Eureka, the Yaak. If these should be developed what will our valley look like? Will we be another Kellogg ?

Sincerely,

Nola Sloan

Nola Sloan

August 8, 1978

Ralph Driear, Environmental Administrator
Department of State Lands
Capitol Station, Helena, Montana 59601

Enclosed are my comments on the Troy Project EIS. If possible, please keep me informed on any hearings scheduled in the future. Thank you.

Sincerely,

Jennifer O'Loughlin
518 West Alder
Missoula, MT 59801

cc: Bill O'Brien
Kootenai National Forest

The purpose of an environmental impact statement is to closely examine the impacts of a proposed project, encourage public participation, and provide a decision making tool for the responsible government agencies. Federal court decisions in the past decade on the National Environmental Protection Act strongly suggest that an EIS is not simply a matter of procedure; that is, an impact statement should demonstrate that the responsible agencies are fully aware of all impacts related to a project and are willing to base their decisions on the extent of these impacts. For example, in the case of the Environmental Defense Fund v. Corps of Engineers (1972), the Eighth Circuit Court ruled that it is clear that NEPA is more than an environmental full disclosure law.

The Troy Project EIS fails to meet the requirements of even "full environmental disclosure" because of its surprisingly blatant refusal to consider alternatives to power from the Northern Lights run-of-the-river dam. Obviously, it was impossible to discuss the impacts of the dam in this EIS because of time limitations. However, the need for power from this source alone went unquestioned, with no discussion of feasible alternatives (I assume the mention of diesel generators was facetious, considing the size of the ASARCO mining project). There was no mention of the possibility of using power from the Libby Dam or the re-reg dam. In other words, agency approval of the Troy Project would mean automatic approval of the run-of-the-river dam, which seems a clear violation of federal if not state law.

WATER QUALITY IMPACTS

Potential effects of mining activities on water quality are often unclear. For instance, the EIS predicts that any water from the mine reaching the local groundwater system through the waste dump patio would have minimal impact because tests on water from the ASARCO adits showed low metal concentrations (p. 120).

However, the same section also noted that, "Past sampling results have indicated some metals in the water including copper, zinc, lead and mercury. The moderately high concentrations observed in past testing were not confirmed in this investigation . . . . Testing for metals is difficult and the discrepancy may have been caused by different analytical or sampling techniques." This uncertainty is repeated later in the EIS: "Metal concentrations reported by (in the north adit) have wide variations some of which are thought to be analytical or sampling" (p. 306). Is there going to be further study of the mine waters to remedy concentration discrepancies?

The discussion of deep mine waters is consistently vague, and while predictions of future effects are optimistic, it often appears that this is based on extrapolation of the insufficient data previously mentioned. In a description of the movemnt of water in the area, there was mention of the fact that "water drained from the adits represents a long-term accumulation and storage, and much of the water flowing from the mine adit may not be part of the short-term active hydrologic cycle" (p. 101). Depending on the metals and minerals present and their solubility, water in the mining area may have accumulated materials which would be toxic in the plant/animal systems dependent on the groundwater. This is suppported by the fact that the streams in the area are poorly buffered and support simple and therefore very fragile biological activity (p. 110).

Effects of the reagents used to separate the ore from waste materials are also unclear. The impact of these chemicals in the groundwater (through seepage or spills) were not explored, and the effects on air quality through evaporation were never mentioned.

AIR QUALITY

The possibility of violations of state and federal particulate standards are clear. A great deal of this pollution will be confined to the immediate mining area, particularily after construction is completed. This does not, however, dispose of the problem. Workers in and around the mine will be exposed continually to high dust concentrations. The EIS mentions that health and safety standards set by OSHA and the Mine Safety Health Administration will be maintained (p. 27). There is no further mention of in-facility pollution or protection afforded to workers. Who will maintain these health standards? Does the state of Montana intend to monitor on-site pollution and any accompanying health effects? What agencies are responsible for inspection of the mine ventilation and fire prevention systems (p. 39)?

SOCIAL/ECONOMIC

The EIS mentioned the "scattered strip development" during the boom phase of Libby Dam construction. Of interest are the problems encountered at South Libby Flats, where unplanned and unregulated development led to groundwater contamination and, eventually, a development moratorium (p. 242). During dam construction, many transient workers located in this area because of the low taxes. About 70% of the mine construction force and 50% of the mine work force will be non-local people (p. 368). Most of these workers probably will live in the Troy and Bull Lake areas. Although ASARCO has made some vague promises to provice housing for management employees (p. 30), it is obvious that the local economy will have to generate most of the housing needed. The ability of the area to do so is never made clear, and discussion of housing needs is consistently vague: "Increased communication between agencies funding current housing programs and the citizens of the county would possibly improve the anticipated housing impact" (p. 421). It is essential to attempt to project future housing needs in order to avoid the type of pollution evident at South Libby Flats.

The impact of the Troy Project on the Lincoln County school sytem is not adequately explored. Table II-65 (p. 282) illustrates present and projected

classroom capacity and enrollment in area schools. Interestingly, the information is limited to the past school year (1977-1978) and future school years. It would be beneficial to examine enrollment and classroom capacity from 1967 onward, thereby including the effects of Libby Dam construction. This is particularily important because the mill levies for Libby and Troy are at or above the maximum allowed by law (p. 237). Is this a result of the need for increased social services during construction of the dam? If so, can the same type of impact on county finances be expected with the Troy Project?

There seems to be an assumption throughout the EIS that the ASARCO mine will mitigate many of the employment problems in Lincoln County: "If there is no mine development and the economic base remains as at present, buying power will very likely deteriorate in the future" (p. 349). This is based on the premise that timber production in the area "will become more finite as time goes on and with no substantial increase in economic base in the future, the economic opportunities must necessarily gradually diminish." Is there evidence currently that timber production is or will be decreasing? What and how long will the rate of decline be?

In the section of public safety and welfare and social service (p. 355), it is noted that "normal population growth" would require no addition law enforcement staff and one additional employee in the public welfare department. Does normal population growth include population increases associated with the ASARCO mine? Was there an increase in crime during Libby Dam construction? If so, can this be expected during construction of the mine?

Star Rt.
Noxon, MT 59853
August 8, 1978

Dear People,

I have taken much of my precious summer time to review your draft EIS, ASARCO's "Troy Project". In 20 years I have accumalated quite a store of explotives, and vocabulary of adjectives; so I will just be polite and say the document is deficient, ommissive, assumptive, and quite a hurry up job! I think someone's trying to pull the wool over the publics eye. I find the time allotted for public comment outrageous, if not quite conducive to discouraging public review and commentary. To little; to short, so much so that I wonder if our comments directed at this EIS will amount to a hill of beans. A 90 day comment period would be much more appropriate. Especially when we consider the magnitude of the projects impact, and the quantity of data to be assimilated. Forewith my comments. I am against the project; there is only one rationale behind it and that is money.

1. P. 316 talks about the failure of large modern tailings impoundment failures being virtually unknown! Well maybe you's didn't look far enough afield or maybe you's didn't want to look very far afield. But USDA, Forest Service Research note: RM 349: from the Rocky Mtn. Forest & Range Experiment Station lists a study on just such a happening in Arizona, May of 1975!! It's also an assumption on page 324; that, "it is unlikely in either case that riffles, the most biologically productive sections of these and other streams, would be totally inundated with silt." Quote: RM 349, "Pool and riffle depths were reduced 50% to 90% in May when the effluents and ore tailings inundated and buried the natural substrate." "As a result, the alternating pool-riffle structure with gravel substrate was permanently altered to essentially a long "run" with sandy substrate." Further, deposition of the tailings cemented the substrate by filling intersitial pore spaces and causing a shift of the stream channel within the flood plain."

2. P. 306 talks of sulfide ores and the potential for generating acid mine water by the reaction of air (oxygen), water & sulfide-bearing materials, particularly pyrites. But that presently there appears to be no such tendency based on the anticipated tailings quality. P. 313 mentions how tailings pond water would be modified, by a number of processes, including oxidation in the pond! Page 53, of the document ("Mineral Resources of the Scotchmans Peak Wilderness Study Area") atributing descriptive information on the Mt. Vernon ore deposit to an oral communication of Mr. Norman Lutz of Bear Creek Mining; given in 1973 at the Pacific Northwest Metals and Minerals conference in Couer D' Alene, Idaho, states "The rocks surrounding the deposit contain abnormal amounts of pyrite." Acid mine water anyone?

3. Appendix H, indicates relative toxicity of the reagents, glycomethl ether, terpineol & potassium amyl xanthate & sodium bi-sulfate to Bluegills. Totally irrevalent data when the known inhabitants of area waters to be affected are salmonoids.

Page 2

4. P. 322, assumes the proposed use of salts as road de-icing material would not have a significant impact on aquatic productivity. Nowhere in the EIS is the cumalative effect of, salts, reagents, oil from the chip road, and potential acid mine water, discussed, studied or considered.

5. P. 312 lists 31 minerals that will constitue some fraction of the tailings, several of which are known very toxic to animals & man. Yet nowhere is it mentioned that the U.S. EPA has until July 1, 1980 to promulgate effluent guidelines for toxicity for 65 pollutants; nine of which are listed on P. 312. The Water Quality Bureau: Dept. of Health & Environmental Sciences proposes to grant tentative approval for an MPDES permit to ASARCO, without even knowing what levels of those constituents will be toxic. This does not sound like the public policy of the State of Montana (69-4801) as written in Montana laws regarding water pollution; which reads, "It is the public policy of this state to: (a) conserve water by protecting, maintaining, & improving the quality and potability of water for public water supplies, wildlife, fish & aquatic life. . . etc."

6. Nowhere in the logs of test wells dug at the proposed tailings site, or in data pertinent to tailings pond seepage is it considered to have injected the wells with dyes or other trace agents to actually determine where tailings pond seepage would eventually find its way to. Almost like no one really wants to know. Why?

7. There is no mention of the at least four other known or potential ore bodies existent at Ross Pt., Dry Crk., Star Gulch and Rock Lake. Their development potential, and the economic feasibility of locating a smelter in the area as a result of their potential development.

8. There is no mention of the Class I Air Standard associated with the Cabinet Mountains Wilderness area; yet page 299 indicates that "It is not unreasonable to expect violations of the Federal Secondary Standards in and around the town of Troy, perhaps even violations of the Federal Primary and State Ambient Air Quality Standards."

9. There is no mention of why an MPDES permit is or is not required for the tailings impoundment, when it will be the source of a pollutant discharge into area waters.

10. The lack of economic, social, physical & environmental impacts for the areas of Noxon, & Heron Mt. in Sanders county is an obvious area of deficiency in the EIS study.

11. P. 301 maintains that ASARCO's proposed peripheral discharge system, when combined with the high precipitation rate of the area, should maintain a moisture content for the deposited tailing sufficient to prevent tailing dust from becoming airborne. This is a gross assumption: when you can see from the the hot month of July and possibly August, that we have a couple summer months when there is virtually no precipitation. Matter factly the year of 73 was an extremely dry one, and a number of times in the last 5 summers, the USFS has been on the verge of closing the Nat'l Forests due to dry conditions. So you can believe there's a wind around, but the moisture is not always there. A study should have been done on what would compose tailings dust and what effect could be anticipated on area vegetation and mitigation measures.

12. Speaking of which; for the closeness of the Kellog-Wallace area to the "Troy Project", it seems that no one ever ventured to go down there and check out some of the questions that have arisen in the EIS and have only

been answered vis assumptions. Are we afraid of comparing the laboratory of Kellog-Wallace and its cornucopia of problems to ASARCO's "Troy Project"?

13. No mention is made of the quantity of the reclamation bond ASARCO will have to post for pursuing mining operations and disturbing federal lands.

14. There is no proposal for mitigation of wildlife habitat that will prempted by the mine and associated development.

15. There seems to be some question as to the delineation of critical Grizzly Bear habitat between the USFS and Fish & Game Depts., some more study would seem appropriate to correct this discrepancy.

16. There is also a discrepancy as pointed out in appendix (t) between computed safety factors for the mine of ASARCO Inc. and the Bureau of Mines. for the knowledge of those considering employment in the mine it would be advisable to have a third computation made: that the truth would out.

17. I object to ASARCO being the monitors of water quality in their area of operations: this is akin to letting the fox guard the chicken coop. An independent agency should have responsibility for monitoring water quality.

18. A few suggestions should the permit granting agencies decide that there is no alternative but to have this mine.

a. Require that the oil chip surface road that is proposed be upgraded to blacktopping like the local hiway system. This will keep oil residues from getting into the water systems, in the quantities that they would need to be applied.

b. Make a proposal that a parking lot at the tailings impoundment be mandatory: and that busing be the mode of transportation to the mine site. This would reduce the vehicle trips required, save precious resources & petroleum products, be a mitigation measure to conflicts between wildlife & vehicle traffic. Possibly reduce the incidence of poaching and be safer in winter.

c. Propose that the tailings impoundment be lined with some sort of impervious material, to reduce seepage.

It's been my pleasure to comment on the Draft EIS in the limited time available. I look forward to an extension of the comment period, and will feel free to send in my comments & suggestions throughout the EIS & permit issuance period.

Respectfully,

Cesar Hernandez

P.S. Appendix A: give a wage rate of $6.75 as hour for Electricians at the mine. The only Electricians wages I've ever heard mentioned were for 14-18 dollars per hr. What's the scoop?

August 8, 1978
Floyd Marita, Supervisor
Kootenai National Forest
Box AS, Libby, Mt.
59923

Floyd,

I'm sorry I missed the public meetings on Troy Project of ASARCO Inc.,... I have gone over the EIS and have found it informative...However it does not deal with psychiatric damages done by this proposal of mining interests spoiling one of the last unspoiled spots in the country...Floyd, the thought of granting ASARCO a permit on the land is causing me great mental anguish.....

Let's take a look at the 1950's when coal as strip-mined in Ohio, a time when an EIS was unheard of. Well needless to say the mining did the maximum damage. The earth was completely wasted, vegetation gone, and streams were running bright yellow, pickled by acid reactions from the mine seepage. Well, then the coal was burned by con-Edison to produce electricity and we swept the fly ash off the porch every morning...

My mental health is worth more in dohlars than a 20 day supply of copper for this country. I'm sick of Federal and State wishy washy attitudes of granting people like ASARCO the right to come in to a beautiful area, sodomize it physically, aesthetically, and then be gone forever.

A friend of mine at work is from Chicago. He said today "I thought Montana would be unspoiled, you know, with farms and forests and a lot of old farts driving around old pick-up trucks." He said that there was as much polluting industry per capita here in Libby as there is in the Greater Chicago Area. All of a sudden I was trying to describe a concept that dealt with the amount of destruction that people support in an area that allows them to live there.

Don't be wishy washy on this. The EIS contains to many "ifs" and is not adequate...

Sincerely yours,

Ben Francy
114 Oak, Libby Montana

916 6th Street
Rock Springs, WY 82901

Dear Mr. Friear,

I have not read the proposed plan on the Asarco mine, but I have some thoughts on it. I have written them in a letter to the Sanders County Ledger and have included a copy of my letter with this note.

Sincerely,

Terri Roach

August 9, 1978

Sanders County Ledger
P.O. Box 219
Thompson Falls, MT 59873

Dear Editor,

After reading the article regarding the proposed Asarco copper-silver mine, I felt compelled to offer my opinion on the matter. Currently, I reside in an area abounding with natural resources-soda ash, coal, and oil. These resources support the community and as a result the community has increased its population immensely. Since industry creates work and the wages are high, people move where there are high paying jobs. As a result there is a housing shortage, so mobile home parks spring up on every empty piece of land and rent prices rise dramatically. (The average rent here is $300/month according to the Chamber of Commerce.) In turn the price of groceries increases, as do prices on other commodities. This makes life very difficult for people on fixed incomes, such as the elderly.

In addition to money problems, social problems increase. This area has documented an upsurge of alcohol and drug abuse, wife and child abuse, prostitution, and crime, to mention a few social ills. However funding for programs to help the community deal with these problems does not increase proportionately. I feel qualified to comment on these issues because I am a social worker and deal with them on a daily basis.

One might ask why I should concern myself with industrial growth in Northwest Montana. It is because after experiencing this type of living situation, my husband and I have opted to leave it and move to your beautiful part of the country. It bothers me to think that industry might move with us. If one company makes money, others will follow. So not even considering environmental dangers, the proposed mine project does not sound good to me. Leave your beautiful land just as it is now.

Sincerely,

Terri Roach
916 6th Street
Rock Springs, WY 82901

Forest Supervisor
Kootenai National Forest
Libby, Montana.

Christopher Evans
Bx 3874, Missoula,
Montana.

Dear Mr Marita,

August 9th 1978.

I have had the draft EIS for ASARCO's Troy project for quite some time now. Even though this huge document is well organized and written, I have found it hard to comprehend. Because this document is for the layperson, as well as the professional, I would like to recomend that you exstend the comment period untill October. There appears to be no reason to rush into this thing, especially when one considers that the welfare of Lincoln and Sandars counties are at stake.

Judging from comments in the local newspaper, some of the more technical aspects of the DEIS have been criticued. This would include such items as water quality, which are really beyond my scope. However I would like to address some Economic questions that I do'nt feel have been fairly delt with. Because the project hinges on the economic out look of nation, it would seem fair to consider its impact on the local economy as well.

The proposed ASARCO mine represents a capital intensive project. This means that large, out of state financial institutions are involved in areas development. There are a number of problems with this, the first being that profits flow out of the community, away from the impacted area.

Historically, Montana has been drained of profits and natural resourses by her mining industry. So, while our

Mr Marita
page 2
August 9th. 1978.

state has been depleted of her wealth, she has not shown a coresponding growth in economy. Although we are a state in this great nation, wealth has consistantly flowed away from us, leaving Montana in a position no better than a colony.

Recently the state of Montana has tryed to rectify this exploitive characteristic. The growing coal industry of eastern Montana have been forced to pay a severance tax. This tax is designed to compensate the state for the economic loss the market system can not account for; capital items in the form of coal and profits leaving the state. Large portions of this tax revenue is returned to the affected area, as well as invested for a future date when there will be no coal. Obviously this tax has helped to cushion the impact of coal development in an otherwise agrairian area.

Montanas' copper tax is very small, certainly not enough to compensate Lincoln and Sandars counties in the event of ASARCO's mine. It is an illusion to think that the influx of people will significantly improve the Tax base because their personal taxs will not be able to compensate for their own impact. ASARCO, because of its capital investement, will be exempt from tax's precisely when that tax revenue is needed.

Because of the obvious "boom bust" nature of the ASARCO project, I propose that Lincoln county levie its own severence tax. The purpose of the tax should be three fold.

1. To help alleviate immediate social impact such as housing, and environmental problems not directly related to the mine.
2. As a cushion to assure the economic health of the county after ASARCO has gone.
3. Completely restore all mine related activities in the Bull river valley to ensure the area of its tourist trade.

While I dont now the legalities of such a proposal, it appears to be a fare arrangement for an area which stands to suffer a lasting impact from the brief exercise of extravagance.

A second problem with ASARCO's project is the fact that it will bring inflation to the communities nearest the mine. A new influx of people will bring an unusual demand on the areas business', driving up prices accordingly. This is simple economics, and has proven to be the case in such places as Coal Strip,Montana, and Gillet,Wyoming. Troy is a rural community, and by no means wealthy. Added inflation will not help the people of the area at all.

A third element that must be addressed is the growing trend of tourism in the United States. Lincoln county, tucked up in the north west corner of Montana is a popular tourist area. We stand to gain more of this traffic as the demand for unspoilt areas increases. However, a development like ASARCO in the most beautiful area of the county would put an end to our tourist appeal. Who would want to visit an area gauged by Bull dozers and crowded with trailer homes? Not many, I bet. It is too easy to pass on through to Canada or Glacier National Park.

The tourist appeal of Lincoln county is being treatened from two sides. The Kootenai re-reg would put an end to more river, and the ASARCO project would destroy the Bull river valley. Should both of these projects occure, Lincoln county can expect a significant drop in its tourist income. Not only will Troy be the lowest in Altitude, but it will be in the pits for recreation as well.

Sincerely,

Christopher S. Evans

Christopher S. Evans.

Box 294
Libby, Mt. 59923
August 9, 1978

Mr. Ralph Driear
Department of State Lands
Capital Station
Helena, Montana 59601

Dear Ralph:

I am extremely unhappy with the short reply period allowed for comments on the Troy Project. It would seem appropriate to allocate a proportionate period for public comment as was allocated for the construction of such an expensive document. Public comment obviously does not receivethe consideration it deserves.

A number of omissions became apparent upon reading the Draft EIS and attending the hearing held in Libby.

1. A determination of the project's overall effect. Several agencies will use this document for decisions regarding public interest. Nowhere does theEIS mention public interest or need. These agencies require a determination of public interest before issuing their various permits. In addition, MEPA was designed to to protect the environment and quality of life for the citizens of Montana. How can the EIS, the only research conducted under MEPA, satisfy that guarentee if theproject is not found to be or not to be in the public interest.

2. Mitigation of wildlife impacts lacks any substantial commitment. Impacts of the sort this mine portends have in the past negatively effected wildlife values and there is every reason to believe that the Troy Project will do likewise. Anytime a low use area such as Mt. Vernon is subjected to an influx of people, access by roads, trails, horses, snow machines, and foot travelers, the traditional wildlife populations are disrupted. The effect may be immediate as the animals are hunted out or it may be gradual as populations are forced to shift ranges over a period of years. Mountain goats are the most obvious victims of human intrusion. This species needs special attention as it has already been eliminated from the Keeler Crk. drainage by hunting pressure. As for mitigation the EIS suggests weakly that the herd should be monitored, that access roads be for official use only, and a firearm restriction be implemented. Nowhere could I find a firm commitment to these restrictions.

I suggest that all game and predator species be monitored throughout the mine's operation and that the data from such monitoring be made public. The monitoring should include studies on winter and summer range use, range use traditions and deviations from those traditions, productivity studies and demographic analyses including immigration and emmigration statistics. The construction permit

for the mine should be contingent upon funding of these studies by ASARCO as part of its mitigation.

To further reduce wildlife road kills and harassment, employees should be required to park at the highway and transfer to a bus for the ride to the mine. St. Regis provides such a service for its logging crews and in so doing saves much energy from waste.

3. The omission of the Noxon-Heron area from the EIS analysis of population effects is a critical mistake. This area is at least as accessible as Libby to the mine site and offers ample opportunities for development. Omission of impacts on this area is a serious oversight.

4. The Libby school system does not have the capacity the EIS reported according to the school superintendent. I also doubt the Troy schools have the capacity for many more pupils.

5. The EIS failed to address the problems of crime and juvenile delinquency which the county tax payers must sustain.

6. The EIS did not investigate ASARCO's labor or environmental record which to date is nothing short of atrocious. I have collected letters and news articles documenting the disregard ASARCO holds for the environmental, safety, and labor conditions at its facilities. This again concerns public interest.

7. Finally, no mention was made of pre- or on-the-job training programs which would assure the area that local labor would indeed be used.

I stand opposed to any mine development until these issues are addressed and there are firm commitments from ASARCO to serve this community in good faith. The construction permit should not be issued until the project can be found to satisfy public need and serve the public interest.

Sincerely,
Rick Johnson
Rick Johnson

Route 1
Troy, Montana 59935
August 9 , 1978

Mr. Ralph Driear
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Ralph:

As I stated in my previous letter to you, 45 days has not been an adequate time period for me to read and evaluate the ASARCO EIS, however, this is the cumulation of my study thus far.

1. Firstly, I disagree with your assumption that the Hard Rock Law takes precedence over MEPA. While this may be true under the legal theory of specific over general, it is also true that the intent of MEPA is to protect the environment, wildlife, and human population of this state. Also, the Montana Constitution states that the State and each person shall maintain and improve a clean and healthful environment in Montana for present and future generations, that the legislature shall provide for the administration and enforcement of this, and that the legislature shall provide adequate remedies for the protection of the environmental life support system from degradation and provide adequate remedies to prevent unreasonable depletion and degradation of natural resources.

To not consider displacement and destruction of wildlife, the overall negative social and economical impact this project will have on our community, and the degradation of recreational opportunities,as shown by your evaluation, seems to me to be in direct conflict with the intent of MEPA and the Montana Constitution. Your duty as the department which issues the operating permit in this project is to insist that our environment and quality of life are protected.

2. The second critisism of the draft EIS is the total disregard for the South Bull Lake Valley, Noxon, and Heron area. Surely, they will be impacted by this project; yet, there is no way we can determine the extent of the impact from the information in the EIS. I wonder how accurate the other projections are since Sanders County was assessed no impacts from this project.

3. More study should be done on the impact of services in the area. By the EIS's own admission, the figures are subjective. They could be made more accurate by surveying additional peoples involved in these services and incorporating factors such as information from studies done in other mining towns. Mining economies are generally unstable due to

strikes and layoffs; government services such as schools, public protection, and welfare will have additional burdens.

4. Because this statement will serve in large part as the review basis for ASARCO's construction permit request to the Department of Natural Resources, and because the Board of Health must require that high water quality be maintained unless a change is justifiable as a result of necessary economic or social development, there should be a section in this EIS on whether the mine is economically or social justifiable.

The Forest Service is to issue mining permits when it is in the public interest. There is no determination of what is in the public interest. I think we should know whether the environmental, recreational, and social costs are outweighed by the benefits of copper to our nation and the additional income to our community before a permit is issued.

The Department of Revenue will base its decision on whether to make ASARCO prepay under the Industrial Development Tax Incentive Program on the EIS; impacts on government services must be studied more thoroughly.

5. I think it is important to know what effect the mine will have on the wilderness quality of the Cabinet Mountain Wilderness area and the proposed Scotchman's Wilderness area. This impact was not addressed in the draft EIS.

6. There are several statements that cause me alarm regarding the potential for water pollution. The results of this study lead me to the conclusion that at the very least ASARCO should have to line the tailings pond so that there is no seepage and the pipeline, as it crosses creeks, should be reinforced. The tailings pipeline should be closely supervised during construction.

The statements which prompted my alarm are as follows:

a. The ore body is located on two major faults. Page 301 of the EIS states that the potential for adverse impact is great if the faults become active. The EIS also states that past earthquake history in Western Montana indicates that sizable earthquakes can be anticipated in the Troy area. This, combined with the projections of catastrophic water quality impacts if the structure should fail, leads me to the conclusion that great precautions should be taken in the construction of the pipeline and tailings pond, if a permit is to be granted at all.

b. The groundwater table has not been established due to the complex geology of the area. The EIS admits that the hydrological and groundwater conditions are not well understood. The EIS "assumes" seepage from tailings will move into Lake

Creek where it will be diluted, and the wells at Little Joes (within one-half mile from tailings pond) are "probably" upgradient from the groundwater table. More thorough studies are essential before water quality impacts can be assessed.

c. Page 310 states "The most significant potential impact of the proposed tailings pond would be infiltration of tailings pond water into the subsurface and subsequent percolation of this water to Lake Creek" "In view of the range in permeability listed for the ponds and the presence of some permeable gravels....If pond water with low concentrations of suspended sediment were to encounter permeable gravels, it should be assumed that the entire flow to the tailings pond could percolate into the subsurface." (Page 311). (My emphasis.) Again, it is essential that the tailings pond be lined.

d. Page 98 states that "Although no quantitative studies were conducted, it appears that bank full stage on Lake Creek is regularly exceeded and that further channel widening will occur in the future." The possibility of Lake Creek eroding the tailings pond seems imminent. We must have more safeguards.

Because so little is known about the possible water quality impacts, under MEPA, Montana water quality laws, and the Montana Constitution, your department has a duty to study the water resource before a permit is granted. There are too many unknowns to take the chance.

In conclusion, I believe that many of the aspects reviewed in the draft EIS require further study.

However, if the Department of State Lands decides to grant a permit before more evaluations are done, the option to "approve the operating plan as submitted with mitigating measures" would appear to be the most sane. We should make every effort to assure that ASARCO constructs its project so that impacts are minimized. We citizens do not have the resources or time to watchdog a corporation such as ASARCO; our natural and human resources are too great an asset to give them the benefit of the doubt (particularly in light of their past environmental record in other communities, their illegal discharge into Lake Creek last year, and their attempt to remove themselves from the jurisdiction of the Hard Rock Law).

If we are expected to allow our quality of life to be degraded in order that ASARCO can profit, then we should be protected to the greatest extent possible by requesting that ASARCO comply with mitigating measures, outlined in the draft EIS on pages 405-425, in order to be granted an operating permit.

Sincerely,

Kathy Johnson

Kathy Johnson

M. H. Daniels
P. O. Box 1475
Trout Creek, MT.
59874

August 9, 1978

Dear Sir;

I live and pay taxes in Sanders County. The quality of life is good here, but I feel that it is threatened by the Troy Project (proposed by Asarco Inc.) in Linclon County. After reading the Enviromental Impact Statement concerning this project, I have found many reasons to oppose it.

The air quality is good in this area, except for the Bull Lake Valley which has low level inversions.(EIS Vol. 1 pg. 76) The air is still clear here but with an increase in treffic directly related to the mine, this condition would get worse. The EIS points out on pg. 299 of the same volume that we could expect state and federal violations.

The water is also good here, but not even the people in Troy MT. beleive Asarco's claim that no water or air pollution will result. By the language in the preface, I don't think Asarco believes it either. I'd like to point out that Asarco has already been cited for discharging into Stanley Creek without a discharge permit, (The Missoulian, August 2) and has quite a history in other forms of pollution. If Asarco cannot respect state laws, how can we expect them to in the future? Page 305 states that collaspe of the tailing pond would "seriously degrade the water quality." On pg. 309 it reads,"It seems probable that some tailing could enter Stanley Creek." The tailing pond would eventually have effects on the ground and surface water quality.(pg. 310) Page 315 uses strong language; structure failure of the tailing pond would have serious to catastrophic water quality impacts, and pg. 324 claims that failure of the tailing impoundment is unknown. At the public meeting held in Noxon, it was pointed out that such a failure has already taken place.. This is only one example of how insufficent the EIS is.

Western Montana is one of the last ideal areas for wildlife. Although the EIS wildlife studies are incomplete, the EIS does make the statement that there will be "significant potential for adverse impacts."

Should the Troy Project go through, there would be an increase in population. The area expected to develop would be the Bull Lake area, something a lot of us don't want. In the EIS it is said that there is a lot of privately owned land that could be developed without seeming to give consideration to the idea that maybe they don't want to develop this land. The school information for Noxon is outdated and for the most part, the EIS overlooked the Heron and Noxon area. Without giving full consideration to these things, I don't see how the project can be approved.

The more people, the greater the burden on the land. I would expect higher taxes and the EIS predicted possibly increased vandalism, poaching and general lawlessness. I realize these things don't affect Asarco, but it affects those who live here. The EIS made the statement that people would leave here if the economic means to buy luxuries and necessities aren't available. People live here because they want this kind of life, economic means or not. An increase in population plus the mine itself would ruin scenic value which draws tourists, also a source of revenue.

As to reclamation, pg. 402 says the land may be committed to other uses because of the initial use, delaying or halting restoration of the mining area without giving specifics. Throughout the EIS, there are possible water and air quality impacts. I hope they are given due consideration. And if it (the mine) does goes through, I want the laws enforced.

I have many reasons why I oppose this project but I'm sure you don't have time to hear all of them and I'm not that well versed. However, I hope you take this letter into consideration. I feel that clean air and water, and solitude are being sacraficed for Asarco's gains, and these things mean a lot to me.

Sincerely,
M. H. Daniels.

August 13, 1978

People-

I would like to comment on the Draft EIS of the proposed ASARCO's Troy Project. Having been unable to read the entire copy, I've concentrated my readings on the AIR QUALITY which will be greatly impacted by this project. May I start with saying the Bull River Valley, Noxon and Heron and Troy areas now have high quality clean air. In the draft you've minimized the impact that will occur and have shakey evidence to support your venture.

On page 75 - WIND: "No wind velocity data is available for the proposal area or the weather recording stations at Troy or Heron, Montana." incomplete information.

On page 76 - EVAPORATION - "Gross evaporation from reservoirs and evaporation ponds would be about 28-30 inches of water per year." What happens to particles in tailings pond when water evaporates? Do they become airbourn? What about very dry years?

On page 76 - AIR QUALITY - "Frequent low level inversions also tend to trap air pollutants in the area." "Frequent high pressure systems during the fall-winter season cause inversions in this area to persist for several days at a time, during which time any air pollutants emitted will continue to accumulate in the valley." Any thought given to the people who live here year round having to breathe this pollution?

On page 78 - AMBIENT AIR QUALITY STANDARDS - TSP

"One 24-hour average (site 1 03/11/77) has exceded the federal secondary standard, but is not a violation as one reading per year above the standard is permitted." BUT "However, a full year's data have not been collected and thus a true comparision with an annual standard cannot be made." More incomplete data.

On page 81 - Particulate - "The larger particles do not normally reach the lungs as they are trapped by the nose and throat, while the smallest sizes tend to remain in the air stream and are thus inhaled and exhaled. It is the "intermediate" size particles those in the range from about 1 micrometer, or micron, to about 3 microns that pass the nose and throat interceptory mechanisms into the lungs, and are retained in the lungs." The data collected to date indicate that about 30.3 percent of the total falls into the larger size renges (i.e. greater than 3.3 microns), 18.3 percent of the total is in the "respirable" range and 51.2 percent is submicron in size." This means that 69.5 percent of the particulate is breatheable. Has any study been done on the number of people living here for treatment of respiratory ailments??

On page 299 - AIR QUALITY - ". . . it is not unreasonable to expect violations of the federal secondary standards in and around the town of Troy, perhaps even violations of the federal primary and state ambient air quality standards." Deterioration of Troy's air quality is a significant impact.

On page 301 - TAILING IMPOUNDMENT

"ASARCO has proposed a peripheral tailing discharge system, which, when combined with the high precipitation rate of the area should maintain a moisture content for the deposited tailing sufficient to prevent tailing dust from becoming airborne." This is an assumption which would not hold true in a dry year. And what would be the result if dust became airborne? What particulate would be in the tailing dust?

I feel if this PROJECT is allowed to go thru it will be a cheap exchange for pure air. I know personally people who have moved to this area under medical advise for their pespiratory ailments. Just now it is being discovered people with asbestosis and black lung from their work environment need to breathe clean air. There are children living in this area with cystic fibrosis, asthma, emphysema in the elderly.

The particulate matter when landing on vegetation will kill it soon enough. The great brown waste of Kellog and Wallace Idaho will be here in our pristine Bull River Valley. How can you possibly justify selling a world created by God for the manufacture of more trash and junk? Do you have any moral conscience? Jobs for the locals is very poor excuse especially as page 350 states "Given the semi-technical and skilled nature of the work force associated with the operation phase of the mine, it is unlikely that more than half of the new jobs would be filled by current residents." And what of STRIKES, where will the unemployed be absorbed? I travel out of the area 50 miles to work, no one wants to travel out of this area to live. Please put my comments on record. I cannot feel at this time there is any need/reason for a mine operating in the Bull River Valley.

In PEACE

Colleen & Hannah Hernandez
Noxon, MT 59853

JOE R. ROBERTS
Attorney-at-Law
119 WEST FIFTH STREET
LIBBY, MONTANA 59923

PHONE 406-293-3431

August 10, 1978

Mr. Leo Berry, Jr.
Commissioner of State Lands
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

RE: Asarco Environmental Impact Statement

Dear Mr. Berry:

While I have concerns about the impact of the proposed Asarco Mine on the quality of life for Lincoln County residents -- particularly the social impacts occasioned by the development -- I would like to focus this comment on the issue of when the permit to mine would be issued and used.

I would first like to look at some statistics relative to the copper industry. U.S. imports of refined copper increased 161.2 per cent from 1975 to 1976 -- 147 thousand short tons to 384 thousand short tons. The increase from 1976 to 1977 was to 391 thousand short tons -- a 1.8 per cent increase. The ratio of imports to domestic production increased from 8.6 per cent in 1975 to 21.0 per cent in 1976, then increased to 22.2 per cent in 1977. Prices on the London Metals Exchange for copper have consistently been lower than domestic copper even considering the additional transportation costs to the domestic purchaser.

The increased production from foreign sources -- primarily African and South American -- and the resulting downward price pressure on domestic copper has made domestic copper mining a very shaky financial enterprise. First-hand knowledge of what this can do to a local economy can be seen in Butte or any of the other towns in the West where copper mining is the major employment. People are out of work, local economies are depressed.

How long will the present situation last? No one seems to know. Perhaps Asarco has a crystal ball and is willing to go ahead with the Troy Project when all other domestic copper mining operations are losing money. More likely, however, Asarco's final determination of whether or not to mine at the Troy Project site will depend on a more favorable picture for international copper prices.

My concern is that if Asarco is granted a permit to mine under the provisions of the Montana Hard Rock Mining Law, it may not begin its operation until some later, more favorable time. This may be one year, two years, five or even ten years. As I understand it, a permit is generally issued for the life of the mine and there is generally no requirement by the state that operations begin at any certain time.

The delay between the issuance of the permit to mine by the state and its use by Asarco will become more important as the time increases. Advances in technology to mitigate environmental damages and changes in the social situation which would be affected are only the more obvious changes that could occur. The environmental impact statement itself could be antiquated by the time Asarco actually mines.

The stipulation process is one used by the Board of Health and other state agencies who grant state authority providing certain

contingencies are met. I would request that it be used by the Department in this instance. If a permit is issued, it should contain a stipulation that if mining operations are not initiated within a time the Department may review and revise the environmental impact statement and the permit itself.

Sincerely,

Joe R. Roberts

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621 Dakota Ave.
Libby, Montana 59923
August 10, 1978

Ralph Driear
Dept. of State Lands, Capitol Station
Helena, Montana 59601

After reading the D.E.I.S. for the ASARCO mining project in Troy, Montana, I don't understand how an operating permit can be granted.

I find that most of my complaints center on the tailing impoundment area. With the exception of the tailings pond and roads very little acreage is disrupted by the mine. The tailing pond, as proposed, would cover 400 acres of land and the construction of it another 200-600 acres (pages 304 and 318 D.E.I.S.). A look at the animal and bird maps show the area of the tailings pond to be one of high use. (Red Tail Hawk, Osprey, Kestrel, Great Horned Owl, p. 170, Spruce Grouse, p. 176, coyote, bobcat, beaver, p. 183, black bear, p. 187, Elk and Deer, p. 201-204,) the area is winter range for Elk and Deer. Also the mountain Bluebird - a species which has a very specific nesting requirement.

On page 441 under the section Alternative Technology it is stated that "if the objective were to reduce the surface storage requirements the tailings pond could be reduced by 40%. In consideration of the game movement the tailings area should be reduced. Also there is the consideration of water quality. Page 323 states that "60-90% of the algae and macroinvertabrates of lower Stanley Creek are sensitive to silt. The less ground disturbed in building the chances increase that Stanley and Lake Creeks will maintain their present water quality." Already, just in exploration ASARCO has increased sedementation in the creek. (See page 320).

The possibility of mass failure of either the tailings pond or pipe line must be examined. The area is criss-crossed with faults(See map on page 302). On page 315 it states that failure could be "catastrophic" to the water quality of the area. On page 322 "if anaerobic conditions developed in the sediment following its deposition in the stream the metals could go into solution and become toxic." I would like to know how the conditions could develope to create an anaerobic environment. Stagnating pools in the eventuality of a drought?

At the end of the Mines life the tailings pond is to be reclaimed. On page 304 it says that the soils beneath the tailings could be altered as a result of ion exchange with the permanent lossage of productive capacity. Couldn't this "ion exchange" also occur with the two feet of soil spread over the tailings for reclamation?

If this mine is allowed to operate I would like to see as little traffic as possible to prevent harrassment of wildlife. I would also like to ask that all roads are closed and reclaimed after the mine closes down. The Mt. Vernon area has a resident population of mountain goats. Mountain goats do not survive well when in close contact with man. Page 211 "During the last 20 years mining, logging, industrial disturbance and increased hunter access have seriously impacted the once thought "secure" mountain goat and its habitat." On page 220 the study goes

Aug. 10,1978
P.O. Box 567
Libby, MT. 59923

Ralph Driear, Environmental Coordinator
Department of State Lands
Capitol Station, Helena, MT. 59601

Dear Mr. Driear:

The following remarks are addressed to the EIS issued by Asarco on the Troy copper-silver mine.

Nineteen years of economic benefit cannot outweigh the destruction incurred by the proposed mine in this region. One cannot measure in terms of dollars and cents the irretrievable loss of natural resources that exist atop the gound of the Mt. Vernon area. Classified as critical habitat for the grizzly by the Fish and Wildlife Service, the construction of the mine forecloses the survival of this species, forced to retreat further into what is left of a once vast wilderness. Mountain goats use the Mt. Vernon area as a wintering ground, and upon completion of the mine will be displaced. As these animals return to the same grounds year after year, displacement leads to a diminishing herd which cannot replenish its numbers with the rapidity with which Asarco will deplete its copper-silver ore vein. Elk, Mule deer, big horn sheep, moose, black bear, mountain lion, and a variety of birds and raptors thrive in the area. Since these animals do not contribute directly to the economy, their existence can be overlooked if one speaks strictly to the profit motive. It is not possible to assess their eventual disappearence, displacement, and extinction in terms of loss to ourselves and posterity. Resources are finite while greed is infinite.

The water in the Stanley Creek drainage has an extremely low pH, making it pollution intolerant. Any disturbance of the fragile aquatic ecology, results in destruction of that perfectly balanced ecology. A four hundred acre pond harboring an enventual accumulation of 2,930,000 tons of tailings will percolate its poisons into the ground, changing the quality of Lake Creek. Any failure in the tailings pipeline destroys the water of Stanley Creek. Besides being as pure as any water in the state, the Bull River area provides endless recreational opportunities--a tourist attraction for more years than nineteen. Two major faults run through the area of the proposed mine--although there have been no major earthquakes here in recent memory, Bad Medicine Camp attests to the catastrophic effect one would have on the proposed mine and tailings pond. Temperature inversions are not infrequent occurrences in the Bull River Valley; operating heavy equipment along with more traffic would increase the particulate matter in the air, resulting in smog which could last

for a period of days until flushed out by still more infrequent winds. Violations in air quality standards occur.

Copper reserves in this country are not so critical as to warrant the destruction of one of the most beautiful areas, the Bull River Valley, in Montana. As stewards of this state, we can only act as guardians of the immense wealth in aesthetic beauty which living here in Northwestern Montana bestows upon each of us. Montana already has her share of mining towns, slag heaps, and smelters. Let's preserve what is left of our heritage, and enjoy our wilderness rather than render it a boom-bust minig relic that is an omenous sign of a civilization who could not save itself from longterm destruction for short-term dollars in the pockets.

Respectfully,
R.L. Clark
Rick L. Clark

621 Dakota Ave.
Libby, Montana 59923
August 10, 1978

Ralph Driear
Dept. of State Lands, Capitol Station
Helena, Montana 59601

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on to say "once extripation occurs natural reestablishment is evidently a slow process." We don't need to add more animals to the "endangered species" list so please close the road.

I moved to Libby because the area is beautiful, and much of my leisure time is spent in the back country. I would really rather see the buffer zone to the Cabinets and related areas without the ASARCO mine.

Sincerely,

Barbara A. Roy

Blazich
Box 288, Troy, Mt. 59935
August 10, 1978

Ralph Driear, Dept. of State Lands
Capitol Station, Helena, Mt. 59601

Dear Mr. Driear:

I would like to make a few comments on the material covered in the Draft Environmental Impact Statement for the Asarco Project, and to mention one or two issues which are not dealt with in the Draft.

The first of these is the short time permitted for study. Although I understand that there is pressure to conform to an already stretched schedule, it seems silly to prepare an extensive public document and then limit the comment period so that only hasty reading and sketchy comments are possible.

I would also like to suggest that a paragraph in the preface of the final EIS be devoted to describing the purpose or function of the EIS under the law. The Draft's preface does not mention that it is the Montana Environmental Policy Act which requires that an EIS be written. In calling for the writing of the EIS, MEPA implies the intent to provide the public with a voice--some say about the way industry conducts itself in the community. The way the law is now interpreted by State government, that voice falls upon largely deaf ears. The

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Dept of State Lands should interpret MEPA to apply where no other specific law covers an important impact of development.

According to the Draft EIS, under the Industrial Development Tax Incentive Program, Asarco may qualify for a 77% tax reduction for three years beginning from the start of operation. If the Dept. of Revenue finds that there would be a "severe impact on government services", Asarco might have to prepay taxes. The statements and figures concerning the community's needs for additional services with the advent of the mine seem conservative in the areas of schooling and welfare. Indeed, the population projections are guesses. I feel that it is optimistic to say that the average citizen's taxes are likely to decrease. It seems more likely that county and municipal property taxes will rise with the increased value of property and the increased needs for services. If Asarco qualifies for the Tax Incentive Program, the mine's contribution to the tax base will be small throughout the period of greatest growth. Asarco should prepay taxes at the full rate.

The impacts projected for the Bull Lake area are severe, particularly the possible

③ contamination of drinking water. Area residents and the County will require funds to establish drinking water and sewage systems.

Concerning the operation itself, pollution of the water in Lake and Stanley Creeks is among the worst dangers. Backfilling of the tailings into the mine has been found to be feasible by the Bureau of Mines. Backfilling would reduce the size of the tailings impoundment by 40%, thus moving it back away from Lake Creek. The water in Lake Creek is rare by virtue of its purity. The tailings pond should not discharge wastes through seepage into the creeks. The devastating effects of tailings pond failure are mentioned. The effects of seepage of wastes and chemicals are not known well enough, though they are known to be detrimental to water quality. Contamination through seepage should not be any more tolerable than "point source" contamination. Water quality should be monitored at regular, frequent intervals. No deterioration of water quality should be permitted. Further studies should be done on the actions of the chemicals used in ore concentration and the ore residues.

Asarco should construct a parking lot and provide transportation for each shift, to

④ eliminate the need for 600+ cars to travel daily up and down Mt. Vernon.

I hope that the comments you receive from the public will assist you in writing the final EIS.

Sincerely,
Laurie Blazich

Aug. 10, 1978
Rt. 2 Box 524
Libby, MT. 59923

Ralph Driear, Environmental Administrator
Department of State Lands
Captol Station, Helena, MT. 59601

Dear Mr. Driear:

The following comments are addressed to the EIS issued by Asarco on the proposed Troy Mining Project.

The aforementioned project is given a profit-earning life-span of nineteen years after which time reclamation will be undertaken. Although the mine appears to be safe for those who operate the facility, I must question the boom-bust situation which it will impose on the small communities of Libby and Troy. If Asarco is exempt of 77% of its property taxes under the "Industrial Development Tax Incentive Program" for three years, company monies will not be funding the increased need of social services which a large influx of people will demand. As a resident of the Libby area, I foresee a catastrophic result for this small community. Both the Asarco project and construction of the Libby re-regulating dam coincide in time and place. With a large in-migrant influx, housing and social services will be crippled. 75% of Troy's housing is at present substandard, development from the Libby Dam left a smattering of mobile homes and housing throughout the area, and private property remains a fixed figure of 270,000 acres--the rest of the land being in the hands of the Forest Service, St. Regis, Burlington Northern, etc. Upon completion of the mine and the re-reg dam, an arbitrary guess presumes that several people will remain in the area, probably jobless as logging is the economic base of the community--and large expansion of present logging operations is not foreseeable. Due to lack of economic opportunities, welfare recipients increase, and juevenile delinquency rises. Existing services are struggling with existing overloads. A gloomy picture of sprawling, unintegrated housing debelopments presents itself. The quality of life in this region deteriorates at rapid speed.

The Bull Lake area is one of the scenic wonderlands of Montana, providing unlimited recreational opportunities as well as some of the purest waters anywhere. As the low pH of Stanley Creek, Lake Creek, and Spar Lake render them pollution intolerant, the Troy Project stands to destroy the fragile aquatic life and taxa of lakes and streams in the area. Seepage from the 400 acre tailings pond will have disastrous effects on the quality of water in Lake Creek. As two fault lines run through the mine project, one is forced to recall Murphy(

forced to recall Murphy's Law--if it can happen, it will. As this area is geologically unknown, no precise predictions can be made, but the failure of the tailings pond and the tailings pipeline over Stanley Creek would ruin the pure waters of the region.

The Scotchsman Peak Area underwent an inventory by the National Forest Service to determine if that area should be set aside as wilderness. ~~attributes that are associated with wilderness.~~ The Mount Vernon mine is only one-and-one half miles from this area. Violations in quality air standards due to mine construction, increased traffic, and temperature inversions in the Bull River Valley will become frequent. Mountain goats utilize Mt. Vernon as a wintering ground, and the Fish and Wildlife Service includes Mt. Vernon as an area that is critical habitat of the vanishing grizzly. Numerous other species such as the mountain goat and lion, elk, deer, and bluebird frequent the area. Man encroaches on their habitat, eliminating food supply and territory, displacing what remains of wildlife in the Northwest.

It is difficult to envision the long-term and adverse effects the environment will suffer for 19 years of productive mine operation. It takes 200 years to regenerate a forest. As for the degenerative effects on the communities of animals and peoples in the area, economic paralysis and eventual extinction are unpleasant proppects. Let's not put so much in jeopardy for so little. Montanans must guard against the needless pillaging of what remains of the vast wilderness of the United States. Oftentimes economic progress is regressive for the environment and people it victimizes.

Respectfully,
Anne L. Oblander
Anne L. Oblander

Route 1
Troy, Montana 59935
August 10, 1978

Ralph Driear
ASARCO EIS Coordinator
Department of State Lands
Helena, Montana 59601

Dear Ralph:

First of all, I would like to thank you for this opportunity to comment on this ASARCO Draft EIS. You and your staff have done a commendable job of compiling data and information in a limited time to produce a very readable EIS. I do feel that the time for comments would be more well served if it were 90 days rather than 45 days. The longer time is needed if one is to adequately research any area of the EIS.

I list my comments and questions below.

1. Close supervision should be maintained during design and construction of the slurry pipeline. Failure of the slurry pipeline can lead to massive pollution of Stanley Creek or Lake Creek. Page 309 "The water quality impact of a pipeline failure between the mill and the concentrator thickener cannot be predicted with accuracy; however, it seems probable some tailing could enter Stanley Creek, thus increasing the concentration of sediment metals in the stream."

In view of ASARCO's extremely poor environmental record at East Helena, Tacoma & Kellogg, it is likely the pipeline will not be adequately maintained and that it will be operated until a failure occurs and then be replaced or maintained. I feel over-engineering would be in line.

Page 308 states "Although such a failure of the tailings line system could have serious impacts, the possibility of such an event is low." Where did you get this data? Running a course fluid (slurry) through a pipeline will cause extreme wear on the pipe and eventual failure. The slurry lines used at the Zonolite mill in Libby fail quite regularly.

2. I feel more research is needed into the reagents metals that will end up in Lake Creek due to seepage of the tailings pond. Although you have cited literature that these chemicals will not kill bluegills, you note that salmonoids are more sensitive to pollutants. I think the chemicals should be tested using similiar water conditions as Lake Creek (i.e. low buffering capacity, soft water, etc.) on salmonoids to determine toxicity.

Also, will the fish in Lake Creek be safe to eat? Do the chemicals and/or metals accumulate in the food chain? Have there been any studies to determine if these chemicals are carcinogenic or mutagenic? Page 311 states "If pond water with low concentrations of suspended sediment were to encounter permeable gravels, it should be assumed that the entire flow to the tailings pond could percolate into the subsurface.

On page 311 you calculate a seepage of 510 gpm.from the tailings pond. We in Troy are living in a very pristine part of the country, and I feel the State of Montana should endeavor to keep it that way. Allowing a pristine creek to be slowly polluted seems inconsistent with State policies and duties. I feel the State should insist that the tailings pond be lined with an impermeable material so that Lake Creek may be maintained in a pristine condition.

3. Page 107 states "The Board shall require that any State water, whose existing qualitiy is higher than the established water standards, be maintained at that high quality unless it has affirmatively been demonstrated to the Board that a change is justifiable as a result of necessary economic social development and will not preclude present and anticipated uses of these waters."

On page 379 you conclude, "Considering all elements studied, the quality of life in the Troy area with mine development is overall determined to be negative, slightly more so than without mine development."

In view of these two statements, I don't see how the State of Montana can license the degradation of Lake Creek.

4. This area is at the crossroads. We seem to have a very high potential for recreational development (not covered in the EIS) and also in view of ASARCO's other mineral claims in the Cabinet area (again not covered in the EIS) have the potential to become another boom town like Gillette, Rock Springs, or Colstrip.

This is a relatively small mine bringing in 300 workers, but once ASARCO gets its foot in the door with this mine, our economy will be addicted to the mining industry, making it much easier for ASARCO to dictate how and when the rest of their deposits will be developed. With the air pollution problems going unabated at their Tacoma smelter, I forsee ASARCO looking to Northwest Montana as a future smelter site.

I trust these other potential developments will be addressed more thoroughly in the final EIS.

Sincerely,
John Mohar
John Mohar

August 11, 1978
Ralph Driear - Project Cooridinator
Dept. of State Lands
Helena, Montana 59601

Dear Mr. Driear;

I am writing to you regarding the ASARCO impact statement which was aired publically in Libby Mont. July 26, 1978. It appears ASARCO has conformed to the requirements of the law and intends to do so during duration of the mining operation . I live at BullLake which will be the center of the impact area and am 100% in favor of the proposed mining venture of ASARCO as presented.

Thank you.
Sincerely

Marshall Warrington Jr.

August 12,1978

Ralph Driear, Environmental Administrator
Department of State Lands
Capitol Station
Helena, Mt. 59601

Dear Mr. Driear:

My initial response concerns the length of the period for public comments on the DEIS. The Department of State Lands has continually expressed its desire to incorporate public concerns into this document; and I consider forty-five days an insufficient amount ot time to digest a document of this magnitude and to make careful and intelligent comments on its contents.

A project such as the Troy Project is of utmost importance to all parties concerned; and therefore, ample time should be allowed for review of the document, and for Department of State Lands and the Forest Service to review the comments and to reexamine sections which might be incomplete. I hope that you plan to consider the public comments in preparation of the FEIS; I believe that adding citizen's letters as an appendage to this document would be a disservice to the public and a waste of taxpayer's monies.

A number of individuals from the Troy area and within state agencies have suggested a need for a regional impact statement. According to statements from ASARCO and a report from the Geological Survey and the Bureau of Mines (statement enclosed) that the mineral potential of the Cabinet Range is very high. When considering adverse social and environmental impacts we must consider future developments. ASARCO maintains extensive claims at Ross Point, Star Gulch, and Chicago Peak. Considering the present inflated price of silver we might seriously consider ASARCO's intentions in the future.

The impact of a single mining operation in the now pristine Bull River valley might be minimal; but what will be the impact on the water resource, air quality, wildlife, social services, electrical power requirements, and the overall quality of life with three or four major copper/silver mines in the valley? This impact cannot possibly be assessed in an EIS which considers only one development. If permits are granted for the Mt. Vernon Project without considering future development, the possibility of making an objective assessment of impacts becomes more difficult once a large capital investment has been made.

On page 85 it indicates that the study area is in Seismic Zone 2, and that past earthquake history in Western Montana indicates that sizeable earthquakes can be anticipated in the Troy area. It talks about the possibility of damage to buildings in the event of seismic disturbance, but neglects to mention an earthquake's effect on the tailings pond dam. I would suggest a full investigation of the structural integrity of the tailings pond dam and the tailings pipeline in the event of a major earthquake. This investigation ought to include the potential effect this would have on water quality and aquatic life in Lake and Stanley Creeks, as well as the Kootenai River.

In the social analysis of the project the potential impacts on the communities of Heron and Noxon was neglected. I would hope that in the FEIS you will consider the impacts on these two communities.

In conclusion I would like to compliment all those responsible for collecting data and formulating this document; but, at the same time I think it is important to remember the need for thoughtful evaluation of that data and to consider the overall impact of major mineral development on the human and natural resources of Lincoln County.

Sincerely yours,
Brian Shovers
Brian Shovers
704 E. Pine
Missoula, Mt. 59801

Aug 16, 1978

Ralph Driear
Dept of State Lands
Helena, Montana

Dear Ralph:

Here are my comments on the Asarco E.I.S.

Tailings impoundment should not enter the flood plain of Lake Creek. In fact the percolation is much to high to be allowed to come so close to the creek. It should definitely be back from the flood plain, but also should allow plenty of space for impurities and ~~particulates~~ to be filtered from the impoundment waters before they become a part of the riparian habitate.

I still contend that the reagents are not tested sufficiently to warrant a go ahead on the project especially in light of long term water resource planning by people from our community to enter our river into the Wild & Scenic Rivers System. But I suppose that will have to go to the E.P.A. Of course, the water quality of Lake Creek is one of our largest concerns in this matter.

As far as Sociological Impacts are

2.

concerned, if indeed this mine were developed, our communities would need every bit of help they could get. To even consider exempting Asarco ~~from~~ any taxes that would go to support already strained resources in Lincoln County would be a disaster for us here.

I realize that these are not professional comments, but I also know that if we do not pay attention to these concerns we will be trying to undo what we have done this year.

Sincerely,

Barbara D. Rhodes

Dear Ralph:

Having just returned from a trip to Minnesota, I'm a bit disconnected on the ASARCO E.I.S. I've been trying to review the document, but found a 45 day comment period to be an incredibly short period of time to read, research, and critique the entire document. So much field work, reading, study, and analysis went into the project analysis, it seems ludicrous to expect it to be read, and opinions to be formed in this short a time.

What little I have read, however raises some questions in my mind that I hope can be addressed in the final F.I.S.

Firstly, on page 104 it states ". . . it can be assumed that seepage from the pond will move into Lake Creek." Assuming this, and also assuming the frothing chemical, oils, grease from the mill, sediment, etc. will be in the tailing slurry water seepage - How can one not think, that any or all of these substances could enter the aquatic environment of Lake Creek. Lake Creek water is presently a very "soft" water situation in which the introduction of any foreign substances, metals, oils, etc. would have a synergistic effect of being far more toxic - than if they were in a "hard" water situation. I'm speaking in terms of the effects on the biotic community the primary plant and animal producers in the water system - who fuel, and determine the quality of the entire creek.

There is a "concentration" effect in the tailing pond environment, that was not addressed. Because of evaporation of tailings waters, and the continuing addition of more chemicals, the pond water, over time could prove to become increasingly concentrated, thus becoming more of a threat in its seepage, to the Lake Creek system.

It states on page 306 that "Dilution of adit effluent will be large, thus no adverse chemical impacts are predicted. . . . assuming the quality of future adit flows will remain the same."

What about the sediment transport from the mine patio and mill site? Page 322 states that upper Stanley Creek supports a periphyton diatom population that requires a firm substrate for attachment" - These diatoms are primary producers for the stream system, and their alteration (ie by the introduction of fine sediments) would significantly upset the biological balance of the stream.

I disagree with the E.I.S.'s minimizing the effects of runoff from the mill site, channeling the natural drainage flow of streams, and seeps into Stanley Creek. It would seem to me that an oiled road, mill site, and plant area would contribute greatly to oil and grease run-off to the creek, not to mention the same substances leaking and dripping from vehicles in this area.

I have already witnessed ASARCO's disregard for the quality of Stanley Creek water on Sept. 28 of last year, when I saw a number of oil cans, and an oil filter laying in the stream channel. The obvious effects could be easily seen and smell hundreds of yards downstream. What will the long term and short term effects of this "commitment to adequately control drainage. . . . and prevent water pollution", as ASARCO states it will do on page 308?

I am recommending that an oil skimming and settling pond be constructed by ASARCO immediately below the mill and plant sites to decrease this potential, and actual hazard in Stanley Creek. this is a commonly accepted practice in municipalities with storm sewer facilities and I would like to have this area addressed in more detail in the final statement. Storm sewer treatment facilities, and the mine site.

When the most water will be used in the mining process and frozen state of water in the tailings pond necessitates replenishing the slurry system with ground water from ASARCO's wells, what will the effect be on already low seasonal flows in Stanley Creek, (who's flow in mid-winter is mostly dependant on ground water recharge? There are wintertime emergencies of certain mayflies, and caddisflies important to the maintenance of Stanley Creeks fishery, and water flow in the creek could become their limiting factor.

There are many other points I would like to question, and bring up, but as I said, there is just insufficient time to wade through and critique a document of this size. This part of Montana deserves more time, before a decision on its future, part of which will be based on this document, will be made.

Sincerely,

Steve K. Loken

2. Other Organization Letters of Comment

Northwest Citizens for Wilderness
P.O. Box 635 Helena MONTANA 59601
PHONE 406 ~~847-2216~~
442-0597

July 5, 1978

Mr. Ralph Driear
State of Montana
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Ralph:

Several of our Noxon-Bull River valley residents have pointed out to us they have failed to receive a copy of the Troy Project Draft EIS until approximately one week after your release of the document.

Normally, this would be of slight concern to us, however, due to the extremely short public review period of thirty (30) days for a two volume document, such a delay assumes significant proportions. In view of this, would it be possible that DSL began the public comment period on July 3, 1978?

We would also like to take this opportunity to request the minimum of an additional fifteen (15) day comment period. Your close attention to this matter would be most welcome.

Thank you.

Sincerely,

L Comola

Mike and Linda Comola,
Coordinators

lsc.

NORTHERN LIGHTS, Inc.

Wm. T. Nordeen, General Manager • 263-5141 • P.O. Box 310 • Sandpoint, Idaho 83864

July 6, 1978

Mr. Ralph E. Driear
Project Coordinator - Asarco
Department of State Lands
State of Montana
State Capitol
Helena, Montana 59601

Dear Mr. Driear:

Thank you for sending me a copy of "Proposed Plan of Mining and reclamation Troy Project Asarco, Inc., Lincoln County, Montana."

This is one of the most comprehensive reports I have ever read. Congratulations on a job well done!

After balancing all the facts and figures, it seems to me that the benefits from this project would more adequately provide for the needs of the residents of the area than if the project was not built. America has a great need for minerals and we are finding it more difficult to get minerals overseas. Mineral imports contribute to our trade deficit. In cases of national emergencies, locally produced metal is very essential.

There is some mention of Northern Lights in the plan. In regard to the route of the proposed transmission line, I do not anticipate any great problem. We will undoubtedly receive more information from the Department and Board of Natural Resources when they consider our application for the transmission line under the Montana Utility Siting Act.

The impact area of the Project is economically depressed and I believe that a solid, steady payroll will help the area. Surely the large tax input will materially aid local governmental bodies.

Thank you for the opportunity of submitting the above comments.

With kindest regards, I remain

Sincerely Yours,

NORTHERN LIGHTS, INC.

Wm T. Nordeen

Wm. T. Nordeen
General Manager

WTN/em

cc: Mr. Ted Doney, Chief Legal Council - D.N.R.C.
Mr. Jack Bingham, Project Superintendent - Asarco

Serving more than 24,000 Idaho, Montana and Washington Residents with Electricity

65 years
of
Continuous Service

First National Bank in Libby

July 7, 1978

Mr. Ralph E. Driear
Project Coordinator - Asarco
Department of State Lands
State of Montana
State Capitol
Helena, Montana 59601

Dear Mr. Driear:

I understand that public hearings are to be held on Asarco and the possibilities of opening a mine in the Bull Lake area.

I'm in favor of this endeavor and believe the public from the Troy and Libby area are also in favor of this project.

The employment this project would generate would be very beneficial to all of us.

Very truly yours,

Bernard J. Remick
Bernard J. Remick
President

BJR:lf

cc:J. P. Bingham
Project Superintendent - Troy Project
Asarco, Incorporated
Box 440
Wallace, Idaho 83873

NORTHWEST MONTANA HUMAN RESOURCES
ENERGY CONSERVATION, YOUTH EMPLOYMENT
MIGRANT SEASONAL FARMWORKERS

P.O. BOX 1058 - 1ST & MAIN BUILDING
KALISPELL, MONTANA 59901 - PHONE 755-1567

July 14, 1978

Ralph Driear
Environmental Administrator
State of Montana
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Driear:

In response to your memorandum dated June 26, 1978, we are hereby requesting a fifteen-day extension to have our comments in for consideration in the final environmental impact statement.

Very truly yours,

Holly Young Bear
Community Development Specialist

HY:dh

Cabinet Resource Group
c/o Blazich
P.O. Box 288
Troy, Mt. 59935

July 14,1978

Ralph Driear, Project Coordinator
Dept. of State Lands
Capitol Station
Helena, Mt. 59601

Dear Ralph:

We have in hand copies of the Draft Environmental Impact Statement for Asarco's Troy Project. We are impressed and pleased by the layout and readability of the document.

We must inform you, though, that the E.I.S. did not become available to the public until Monday, July 3. It is therefore imperative that the thirty day period for public response commence from that date. We wish alao to request the fifteen day extension of the comment period and to ask that all individuals be included in this extension whether or not they request it individually.

Bill Martin spoke to Bill O'Brien of the Kootenai National Forest concerning the delay between the date of publication and the date on which the E.I.S. actually became available to the public. Mr. O'Brien termed Bill's concern with the time period a "techincality". If allowing a realistic time period for public participation be a technicality, then the document itself is no more than a technicality. Obviously, this point of view is inconsistent with the Forest Service's own public review process.

We are disturbed that the period for public comment is so short. There is no way that a thorough study can be undertaken in that amount of time. A sixty day extension, making a total of ninety days, would seem more in keeping with the purpose of this document's publication - the opportunity for public input. We hope that the Department and the Forest Service will consider this most vital aspect of the management of public lands and will grant the public an extended period for review of the Draft E.I.S.

Thank you for your attention.

Sincerely,

Laurie Blazich
Laurie Blazich, Secretary

cc: O'Brien

HISTORICAL RESEARCH ASSOCIATES

P.O. BOX 7086 MISSOULA, MT 59807
Phone (406) 721-1958

ALAN S. NEWELL
728-1495

GARY D. WILLIAMS
549-8557

July 20, 1978

Mr. Ralph Driear, Environmental
Administrator
Department of State Lands
Capitol Station
Helena, MT 59601

Re: D.E.I.S. ASARCO Troy Project

Dear Mr. Driear:

In reviewing the ASARCO Draft Environmental Impact Statement for the Troy Project, I was concerned about the provisions for identifying and mitigating impact on known or potential cultural resources in the project area. I would like to address two points on pages 291 and 292 of Volume I of that report.

It is not evident from the statements in the report that all of the lands to be impacted by the project actually were surveyed for possible sites. Establishing density patterns for planning is fine until it gets right down to impacting the area. At that time it is necessary to do a methodical survey of land involved to avoid the loss of irreplaceable cultural resources.

The statement that "There are no known historic sites within the area..." seems to indicate no survey was done with regard to identifying or assessing potential historic sites. If this is true, a historical survey should be done before development begins.

As I do not have copies of the surveys mentioned in the D.E.I.S., it is difficult for me or my associates to assess the quality of those existing studies. I hope, however, that you will consider the two areas of possible neglect that I have mentioned above.

Thank you for your kind consideration of this matter.

Sincerely,

Gary D. Williams
Gary D. Williams, President

GDW:cb
cc: William O'Brien
Edrie Vinson, S.H.P.O.

Northwest Citizens for Wilderness
Mining Company, Inc. STAR ROUTE
NOXON, MT. 59853

PHONE (406) 847-2216

7/25/78

Testimony; Public Meeting
Noxon, Mt.

We at Northwest Citizens for Wilderness Mining Co. encourage the exploration and extraction of minerals for the beneficial use of mankind. We also acknowledge a responsibility, that our pursuit of the wise use of this mineral resource, should not precede or destroy other qualities of the enviornment. We believe that an insufficient effort has been made to date, to recover and recycle our existing stocks of refined metals. We have reviewed the proposed plan of mining and reclamation for Asarcos Troy Project, and find it deficient in its regard towards the resources of Watershed, Wildlife, and the Social and quality of Life prospects. We cannot therefore endorse this project, at this time or place.

Respectfully,

Cesar Hernandez

President

MINERAL RESEARCH CENTER

Post Office Box 3708 • (406) 494-2778 • Butte, Montana 59701

July 25, 1978

Montana Department of State Lands
Capitol
Helena, Montana
59601

Subject: ASARCO Inc.
Troy Project

Gentlemen:

I am unable to personally attend any of your three hearings but we are very much in favor of this project.

Our Mineral Research Center employs over 40 people which depend on active and developing mines. In addition our studies show that we must have more minerals in the United States both for economic and for strategic value in case of war.

Sincerely yours,

Montana Tech Foundation

J. K. Archibald
President

Bear Creek Mining Company

Spokane Office

July 26, 1978

Mr. Ralph Driear, Environmental Administrator
Department of State Lands
Capitol Station
Helena, Montana 59601

Bill O'Brien, Environmental Coordinator
Kootenai National Forest
Box AS
Libby, Montana 59923

Re: Troy Project DEIS

Gentlemen:

In our opinion you have done a commendable job in preparing this DEIS, and hope it is the first step in the environmentally sound development of the Troy Project by ASARCO. We feel the program as outlined will allow feasible operation as well as protection for the environment; and urge you to continue the approach in subsequent steps leading to issuance of the required permits.

One area of concern we noted was in the area of water quality. It appears that the standards set for Stanley Creek may well exceed the base-line levels, and therefore are already impossible to meet. It would appear more satisfactory to set reasonable standards in line with existing conditions, and feasible regulations of impacts for the proposed operations.

Please keep us informed as subsequent steps in this process are completed, particularly when a final EIS has been prepared.

Thank you.

Sincerely,

R. C. Babcock, Jr.
Vice President

RCB:fl

cc: Jack Bingham
ASARCO

BOX 9, DISHMAN BRANCH • 7821 EAST SPRAGUE AVENUE • SPOKANE, WASHINGTON 99213 • PHONE: 509-924-2600 • TWX: 510-773-1821

CONRAD NATIONAL BANK
MAIN AND CENTER STREET
KALISPELL, MONTANA 59901
TELEPHONE (406) 756-5001

EUGENE O. GILLETTE
CHAIRMAN OF THE BOARD
& PRESIDENT

July 31, 1978

Mr. William J. O'Brien
U. S. Forest Service
P. O. Box AS
Libby, Montana 59923

Mr. Ralph Drier
Project Coordinator - ASARCO
Department of State Lands
State of Montana
State Capitol Building
Helena, Montana 59601

Dear Messrs. O'Brien and Drier:

I have been actively involved in commercial banking in Northwestern Montana for over thirty years. The last twenty-eight years I have been associated with The Conrad National Bank of Kalispell. The Conrad is the largest bank in Northwestern Montana.

The ASARCO proposal for opening a copper-silver mine near Troy, Montana presents a very exciting prospect for this area of the state. At present, a large part of our economy is based on the timber industry. A large mining complex such as ASARCO proposes will do much to broaden the economic base and add stability for the residents of this area.

In view of the minimal adverse environmental impact from such an underground mine, I urge your agency to give favorable consideration to this project at the earliest possible time.

This combination of minimal advserse environmental impact coupled with the substantial economic benefits including a broadened tax base, greater employment opportunities and diversification of our industrial base are compelling reasons for urging approval of this project.

Very truly yours,

Eugene O. Gillette

University of Montana
Missoula, Montana 59812

INSTITUTE FOR SOCIAL RESEARCH
(406) 243-5411

August 7, 1978

TO: Mr. Ralph Driear
Acting Environmental Coordinator
Department of State Lands
1625 Eleventh Avenue
Helena, Montana 59601

FROM: Raymond L. Gold, Director RLG
Institute for Social Research
University of Montana
Missoula, Montana 59812

RE: Comments on the draft EIS/Troy project

The following comments on the draft environmental impact statement for the proposed ASARCO project are confined to pointing out (1) major omissions related to social impact assessment, (2) inadequacies in the assessments, and (3) suggestions for improving the presentation.

1. The most obvious omission is the absence of social data on the Troy-Heron area. According to the EIS authors little information is included about this part of the study area because Sanders County does not have a comprehensive plan, consequently data on housing, services, etc. are not readily available; and because the authors felt that impacts in Sanders County would be relatively insignificant. Since the purpose of the EIS is to present an analysis of "broad cumulative environmental impacts" of the proposed development it seems imperative that if certain data are used to analyze impacts on one part of the study area, similar information must be gathered and analyzed for all of the study area lest it appear that impact is dependent on information which is readily accessible. The authors' judgment that there would be significant impact on Libby and vicinity and insignificant impact on Noxon and vicinity is not supported by locals who appear to be knowledgeable about the study area. It seems vital that at least as much information should be collected and reported on the Noxon area and has been done for Libby.

   A second major omission is consideration of impact on the local residents whose income would not be increased by construction and operation of the mine; e.g., the elderly,* other retirees, and those who are employed on relatively fixed incomes. This problem is dramatized in the statement beginning on page 377 that "Initially, with relatively high wages being paid the construction workers and the mine workers, there would be an increased ability of the local population on the whole to purchase goods and services." According to the most optimistic estimate (page 358) only 30 to 60 locals would be eligible for those initial, relatively high wages. It seems apparent then that most locals will have substantially less purchasing power in the competition for goods and services.

2. The principal inadequacy in analyzing the data seems to be caused by a lack of knowledge about research findings in rural areas where similar development has occurred. One often hears that there are "too many studies and nothing is done." Assessments of potential impact can be greatly strengthened by paying attention to both research in and the experiences of those parts of the West that have already been subjected to rapid social change. For example, the first paragraph on page 376 states that the impacts from construction and operation will be nearly identical and therefore "study findings are here considered as one." Researchers have consistently found that the impacts of the construction phase will have severe and long-term effects which are qualitatively and quantitatively different from those related to the operation of the facility, partly because of the characteristics of the construction force, their transiency, and the lack of information and capacity to prepare for their arrival. The operational phase, although longer, will usually have less impact because the workers plan to stay longer and fit into the community, and because the construction phase fostered community preparations for the ensuing one. By lumping the two phases together, this EIS underestimates and misportrays social impact.

   A second inadequacy in the data analysis is that numerous projections are "based upon the present level of service," in which simple arithmetic multiplication is used to project a complicated relationship. If all the newcomers were people like the locals in the study area, and if adequate facilities and services were available upon their arrival, then one might say that X number of additional people will require one more deputy, doctor, etc. But research in other rural areas experiencing rapid industrialization shows that there is certain to be a serious lag between need and availability of most services and housing which, coupled with the known characteristics of the construction population, will demand much more than is planned from the personnel and the budgets of such services as law enforcement and public health agencies. Similarly, the assessment of impact on welfare services does not take into account the history of other development sites where strikes and other work stoppages have occurred.

   A third problem in the data analysis is that sections labeled "quality of life and social values" address, in large part, economic

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*Although Lincoln County has a low median age, probably because of in-migration during the dam construction, the more rural parts of the county have a large number of retired persons.

rather than social concerns. It takes some time for people to be able to talk about their values with even the most skilled researchers; in time it becomes much easier for both to try to relate quality of life to income. But the assessment problems created by hurrying this process emerge clearly in the EIS and in the public meeting discussions. More time is needed for this process and also to address discrepancies between the author/researchers' views and those of the local residents. These differences are not always as apparent as they are in the EIS report on housing in the Troy area (page 268) which says, "Nearly 73% of the housing in Troy area is in deteriorating or substandard condition"; whereas in the questionnaire 86 percent of the Troy residents report being satisfied with the condition of their home, and only 5 percent report their home needing repair.

3. In addition to remedying the omissions and discrepancies, the EIS could be strengthened in the following respects:

   a. The statement repeatedly refers to mitigation rather than prevention of various impacts. The term mitigation is apparently used throughout to mean both preventing and repairing damage. This is akin to using the same term for preventive health care and surgical amputation. A more bizarre use of the term mitigation appears in an extraordinary statement on page 420, paragraph 3, in which locals' efforts to control their lives are made to sound dangerous compared to the relatively benign intrusion of the planned development.

   b. The process of public input for the EIS review does not appear to be working very well. If the agencies involved do not wish to be continually labeled as "going through bureaucratic motions" they must develop better opportunities for more people to feel that their input is really desired and will be used. Many people who are knowledgeable about the local scene, and/or who will be fatefully affected by the proposed development, are not able to function at a public meeting where they feel inadequate and intimidated. And many public agency people who are excellent in their fields of expertise are not skilled at encouraging public input nor at projecting conviction of the value of such input. This is a difficult problem for harrassed public officials to deal with, but if it is not resolved, public trust will continue to deteriorate and cynicism toward the responsible agencies will grow.

   c. The discussion of health services would be more consistent if the response from item 19d in the most recent questionnaire which says that 85% of the respondents feel health facilities are inadequate were quoted at the bottom of page 287 rather than the 8% figure presented from the Sootsman study.

Mindful of the limited resources of the responsible agencies to do this job and of their public explanations of the limits of their mandate, no attempt has been made to address some important social impact issues that are not covered in this EIS, for example, the cumulative effects of a number of proposed developments on this rural area and the long range cost-benefit questions.

jm

United NATIONAL BANK OF LIBBY
LIBBY, MONTANA 59923 · TELEPHONE (406) 293-4151

August 9, 1978

Ralph E. Driear
Project Coordinator-Asarco
Department of State Lands
State of Montana
State Capitol
Helena, Mt. 59601

Dear Mr. Driear:

Am writing to you regarding the Asarco Environmental Impact Statement which was aired publicly on Wednesday July 26, 1978 in Libby, Mt. The majority of the Board of Directors and myself were in attendance at that meeting. From what reading we have done, and the views expressed at that meeting, it appears that Asarco has spent considerable amount of time and effort in conforming with the laws as governed by your agency. The Board of Directors would like to go on record on behalf of the bank to advise that we feel the Asarco project would help the employment picture, this enhancing local economy. After reading the projections as put in the statement, it is felt the economic impact would be beneficial to Lincoln County as a whole.

United National Bank stands ready to assist in any financing requests we may receive from individuals employed at Asarco.

Thank you.

Sincerely,

Ted Vanover

Ted Vanover
Exec. Vice President

TV/tr

MONTANA
WILDERNESS
ASSOCIATION
P.O. Box 635, Helena, MT 59601
Phone: 442-0597

August 9, 1978

Mr. Ralph Driear,
Troy Project Supervisor
State Of Montana
Department of State Lands
1625-11th Avenue
Helena, MT 59601

Dear Ralph:

On behalf of the Montana Wilderness Association I would like to submit our comments and observations on the Troy Project Draft Environmental Impact Statement.

We have found the document highly readable for such a complex array of data and the importance of the subject. The Department warrants congratulations for their efforts.

Generally we find a significant flaw in that certain items of concern and importance have not been discussed nor, in other situations, even included in the document. We will begin by pointing out these items together with a brief discussion of each and conclude with a more detailed critique of the Draft EIS itself.

A) The Draft EIS fails to describe, even acknowledge, the extent of ASARCO/Bear Creek mineral holdings throughout the northwest portion of the State of Montana. While the Department might conclude they have no authority to evaluate such a wide scope, the Federal Government certainly does have not only authority, but obligation under NEPA's "full disclosure" provisions (EDF v. Corps of Engineers, 2 ERC 1260, 1267 (E.D. Ark 1971). The issue, of course, is the extent of the ASARCO/Bear Creek regional mineral claim holdings and exceedingly high potential for development. The general public remains unaware of this probability, and the document does little to enlighten them.

By earlier letter, Agriculture Secretary Berglund has indicated the probability of mine development from a prospect ie approximately the ratio of 1-10,000. The Secretary's information fails to distinguish that much of the recoverable mineral reserves from the corporate holdings in the vicinity are,at this time, proven to be commercial.

It is in fact a shallow hope to discuss the social/environmental impacts from THE MINE, when in fact, the Troy Project is simply the lead duck in a long line, each waiting their respective turns to change a rural agrarian society to dependent rural sprawl.

The question must be asked: Have either DSL or the Forest Service requested core drill data on ASARCO/Bear Creek Mining claims exploration work in this vicinity? Those approximate areas of concern are as follows:

1. Chicago Peak (Cabinet Mountains Wilderness)
2. Star Gulch (Scotchman's Peak RARE II 1-662)
3. Ross Point (Scotchman's Peak RARE II 1-662)
4. Seven Point Mountain (Vermillion River drainage)
5. Trout Creek (RARE II 1-664)
6. Beaver Peak
7. Additional Ross Point-Spar Lake (RARE II 1-662)

Most of these areas stratabound copper/silver potential is well known within mining industry circles. Seven Point Mtn. for example, has been fondly referred to as Montana's most significant copper find. This takes on some significance when one considers Butte is included in this.

In addition, even should a degree of reliability be assigned Mr. Berglund's defense of a request for a regional environmental impact statement, such posture fails to realize exploration itself can and has the potential for significant impact. For example, ASARCO has twice within the past year requested road access into Scotchman's RARE II 1-662 for ease of exploration of two(2) seperate ore bodies claimed by the company. Such requests can be expected to intensify should the Troy Project be approved.

The draft EIS fails to reveal that ASARCO can be expected, and is, intensively lobbying non-wilderness designation for RARE II 1-662 because of identified mineral potential, while at the same time, the Secretary of Agriculture and Kootenai National Forest have, in the recent past, indicated mineral potential is sufficient to disqualify the area from wilderness classification. One must suspect if potential is so great as to cause such concern, perhaps such potential is of sufficient value as to require comprehensive review.

The Troy Project is simply not apart from the remainder of the ASARCO holdings. This is reinforced in ASARCO's operating plan itself, wherein the company suggests leaving the mill open after ceasing of operations to provide "custom milling" for other local mines. Well, there are simply no local commercially producing mines at present with similar ores. Before leaving the subject, extensive stratabound copper deposits of the Revette formation are also claimed in this same region by Burlington Northern (Waloven Creek) and Exxon (Seven Point Mountain). We believe it can be effectively argued the Federal manager is obligated to evaluate all such potential when discussing various local, regional socio-economic potential impacts.

B) While the subject of a Threatened Species is covered in the DEIS, no distinction which clearly and decisively complies with Section 7 of the Endangered Species Act is presented. In fact, those statements which are included evades an obligation of the Federal manager to assure protection of the species and its habitat. Statements such as, "conflicts could be minimized", or "... would not directly impact... in the general vicinity"(emphasis added), do not coincide with Section 7 Court precedent or opinion of the Solicitor General's counsel. To state that, "human access to the ridge complex (west of Mt. Vernon) is particularly important, as is access to the south facing slope of Mt. Vernon," is simply not enough. Nowhere to be found is a firm commitment by Forest Service that such potentially detrimental situations will be resolved before highly probable impact to a Threatened Species occur. As the South Adit Road, the Bear Creek exploratory road west of the Mt. Vernon Saddle and major mine support facilities are located on public lands requiring Federal approval, the Forest Service has a clear obligation under Section 7 to avoid approving actions which will be detrimental to a Threatened or Endangered Species. Mitigation of impact is simply not appropriate for Federal activities or approval of activities which would impact the Grizzly or its Habitat.

C) What little discussion the document contains regarding Scotchman's Peak RARE II 1-662, is incorrect (pg 264 Vol 1). The presently inventoried roadless boundary is 87,000 acres rather than 77,504, of which only 37,020 acres were inventoried in 1972 and subsequently selected by the Chief of Forest Service for further wilderness study. A more substantive point is the border is approximately quarter to one-half mile, rather than 1½ miles from the intended mine site. Increased human access into this presently unclassified roadless area will be as distinct a negative as any imaginable impact on the general area's wildlife populations, yet this factor has been neglected in the Draft EIS. The proximity to the mine and convenience of road access provided by the Mt. Vernon Saddle crossing will induce an artificial human influx capable of significant impact to mountain goat, mountain lion, elk, black bear, Grizzly bear, mule deer and other species. This detrimental human influx is not limited to the Ross Point divide, but has the capability of easily effecting Scotchman's entire wildlife population because of the areas limited size. The issue of Scotchmans wildlife impacts takes on added significance when both ASARCO's Ross Point and Star Gulch mining claims are included in an overview of potential impact from cumulative corporate mining activity.

D) Although illustrated at Table II-22, the text fails to present nor evaluate the highly developable Bear Creek (Kennecott Copper Corp) properties in Bull River valley. You have indicated 40% of the mine related population influx could be expected to reside in the vicinity of Bull Lake, yet fail to go further and evaluating the potential future for this approximately 1900 acres. As Bear Creek Mining has somewhat recently refused to discuss either market value sale, or consider the conservation easement programs, the relationship to land speculation or company related development of these key private lands surfaces as a significant issue.

E) We have found entirely missing is discussion of an inter-relationship between Northern Lights proposed Kootenai Falls Dam and the Troy Project. If in fact there is none, this conclusion should have been clearly displayed, for if in fact there is a relationship, which many have reason to beleive there is, the Forest Service at minimum is required to evaluate these projects as one in arriving at final decisions.

F) The Draft recommends no provisions for a time frame fôr implementation of the Operation Plan, or review of the permit if mine operation exceeds that time frame.

The following comments refer directlyto the Draft EIS:

Page 32. Are there sufficient 100-80 ton railroad dump cars available to haul mine concentrate?

Page 32. These maintenance roads conflict with the U.S. Fish & Wildlife Service's biological opinion and must be permanently closed in the case of the South Adit road and that section leading to the Saddle above the north adit.

Page 39. "Heavy equipment" use in fire fighting must be closely coordinated with Forest Service.

Page 41. Here and in identicial situations, the Draft indicates ASARCO is considering this or that above and beyond the scope of the EIS. This leaves the reviewer a bit lost to know how much influence the State or Federal agencies have in controlling or structuring development of the various facilities.

Page 42. How will sewage sludge be disposed and where?

Page 59. 1700-1800 gallons per day of diesel fuel oil will create a large amount of air pollution in a presently pristine airshed. Could this not exceed Class II airshed standards? Would it exceed Class I standards should Scotchmans be classified wilderness?

Page 59. States that, "depending on water conditions encountered in the mining process." Apparently this is unknown, yet ASARCO has applied for a pollution discharge permit not knowing what could or could not even be encountered.

Page 60. Any aggregate obtained from the quarry south of Bull Lake would entail substantial industrial traffic on the Sanders County portion of the roadway in addition to safety hazard during summer months of recreational use at Bull Lake.

Page 67. Revegetation should consist of native flora.

Page 70. What is the county's present capability to handle solid waste and what is the availability of and necessity for additional landfill sites? Will ASARCO use county facilities or their own solid waste disposal?

Page 242. Page 100 indicates little ground-water information is available in this portion of Montana. Can the impacts of sewage from rural residences to Bull Lake/River and Lake Creek be identified?

Page 251: Statement is incorrect. National forest lands are available for mineral development and are presently under claim by Bear Creek/ASARCO.

Page 265. "Forcing young people away" is somewhat of a misdonomer. Young people normally leave home and small communities in order to broaden an otherwise limited experience.

Page 266. The statement, "people will leave the area" because of reduced economic benefit conflicts with statements regarding local social values on page 265.

Page 275. Use by heavioy loaded freight trucks will require frequent upkeep of those public access routes utilized for hauling ore concentrates. Are such costs included in economic benefit/cost to local counties?

Page 280. Will increase in solid waste pickup be increasing and what are th inherent cost in the form of increased maintenance and additional containers?

Page 282. What are the maximum school capabilities, and how much decrease in funds when the project winds down? There will also be a loss of service and teaching related jobs in direct relationship to the mine's cycle.

Page 301. "High precipitation" is lacking several months of the year.

Page 305. The document indicates "toxic chemicals" are not to be present in the tailings. Why is it mentioned here?

Page 306. In order to objectively evaluate an application for a pollution control permit, more data than "much of the oil and grease will be removed" must be known.

Page 307. How is water to be "captured" and "escorted around & through the plant?"

page 308. First you say "Breakage potential is low", then that of the system will depend upon "design construction and operation", next you "anticipate" that with the above on line the system would be"relatively safe". Will, in fact, construction of the facility determine its safety and how will this project be monitored to assure its accomplished in an appropriate manner?

Page 309. What is the geological, topographical (etc), relationship between other ASARCO milling facilities and those proposed for the "Troy Project".

Pg 309 (final sentence). Page 305 clearly states spillage of "toxic chemicals" involved in this operation. If so, where?

Page 310. Will a pollution discharge permit be required of ASARCO for tailings pond "seepage"?

Page 312. 1170 gallons per minute (gpm) is no small amount, yet there hasbeen no discussion of chemical composition.

Page 315. Blue gill do not reside in Lake or Stanley Creeks, nor Bull Lake!

Page 317. We see two "ifs" here. Has a successful reclamation plan been filed?

Page 320. Except oil and grease must be added to future mine water discharge resulting from heavy equipment within the mine.

Page 322. There is no discussion on the sensitive soils where access road construction is intended.

Page 325. The document keeps flip-flopping on the matter of toxic waste. If those metals indicated here "exceed water quality criteria" in the tailings impoundment, why wouldn't they be found in the slurry mix? (as indicated beginning on pg 323 - Tailings pipeline).

Page 339. Suggest replace improved (mule deer) with continues.

Table III-3. In a ten (10) year span, the Lincoln County population increased by 5,600 people because of Libby main dam construction (pg 239). Table III-3 fails a test of continuity. The Re-Regulation dam should account for a much higher employment project than given in this table.

Page 349. How will the mine help fixed-income or retired people?

Page 358/9. What assurances are there that 30% and 50% of the work force will be local workers?

Page 378. If we discuss and evaluate the local economic impacts of the mines ultimate closure. Why cant we similarly evaluate additional ASARCO/Bear Creek ventures coming on line?

Page 396. Pg 343 indicates the mine has the potential to adversely affect the Grizzly, yet no recommendations are noted to alleviate this possibility. However, Grizzly are not listed here. Why?

Page 406. MEPA (Montana Environmental Policy Act) is conspicuously missing here!

Page 416. Item (5) as mentioned earlier, the south adit road must be permanently closed together with access to the Saddle from the north. Further, the U.S. Fish & Wildlife Services biological opinion recommendation to bus employees to the mine site has considerable merit. Simple "official use only" will not be sound. Repeatedly, here we are rushing to "monitor" wildlife rather than prevent those causes for various species demise. "Monitoring" crops up when someone cannot find the valor to say no to known adverse wildlife impact.

Page 417. If the Federal agency is to comply with the law, fewer"could", "ifs" and "maybes" will have to be used in the final statement when addressing protecting a Threatened Species from adverse impacts.

Page 418. 10000 (typo)

Page 441. Certainly ASARCO wishes access to cheaper hydro-electrical power - in this case at the cost of perhaps the beautiful Kootenai Falls.

We are grateful for the opportunity to review this DEIS and look forward to review the Final statement.

Sincerely,

Mike Comola, President
Montana Wilderness Association

Environmental Information Center
107 West Lawrence
Helena, MT 59601

August 10, 1978

Leo Berry, Jr., Commissioner
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Sir:

Please accept the attached comments from the Environmental Information Center concerning the ASARCO Troy Project. We hope that these comments will be addressed in the Final EIS.

Thank you,

Bob Buzzas

Bob Buzzas
EIS Staff

ASARCO Comments August 10, 1978

The DSL and USFS Draft Environmental Impact Statement concerning the TROY PROJECT, ASARCO Inc. is the subject of these comments.

We hope that our analysis is constructive and that you will incorporate our observations in your further permit assessments relative to this project at Troy, Montana.

For the sake of brevity and printing costs, we will discuss only those issues where we feel your analysis is not sufficient to assure environmental protection.

Initially, our attention is drawn to the actual effectiveness of the air and water quality laws of Montana and the manner in which they have been enforced at mining operations. We feel that the reference to these laws as mitigations is not valid, since their enforcement is weak. The tremendous effort recently put forth by residents of the Stillwater area was met by a very unsatisfactory performance by the State regarding water quality problems at the Johns Manville operation. The faulty design of the Mikehorse impoundment system near Lincoln resulted in severe biological damage to the Blackfoot aquatic system. We are also aware of other mining areas where water quality problems exist. We appreciate those efforts made to inventory such problems, but feel that enforcement and data collection are not as efficient as implied by our laws. The current air quality problems in Butte are another example where citing laws as mitigations to mining is not appropriate.

The Hard Rock Mining Law is also badly in need of Legislative repair, however, its enforcement, particularly in terms of reclamation is not nearly as effective as it could be even under present circumstances.

The current litigation over the inclusion of the concentrator and tailings pond at Troy implies that the Company is searching for a relaxation of environmental standards. This is indeed a poor position for them to be in during the preparation of an impact assessment of their project. This is in character with the otherwise poor environmental attitude of this corporation elsewhere in Montana and throughout the country. Until this litigation is resolved, it does not seem appropriate to assume that we have a valid and binding understanding of environmental impacts at Mt. Vernon.

The location of the main adit and the tailings slurry line are apparently unknown. Until such plans are publicly presented in formal design, it is not safe to assume that the company has allowed realistic assessment of their activities, nor that they have a complete permit application. The tailings pond, whether under the regulation of the Hard Rock Act or not is a source of much concern to us.

Primarily, it must be recognized that this part of the state, being adjacent to both a wilderness and a proposed wilderness area, is exceptional in its scenic qualities. Any efforts to eliminate or reduce this waste disposal facility deserve your maximum attention. Whether or not backfilling the mine with tailings is advantageous from the company's view, we request it. We request that all tailings that can be put back, be put back. Changing the mine design and scheduling would be an inconvenience we are sure the company can easily overcome. Any significant reduction in the magnitude of waste would make it more feasible to develop present or future beneficial uses of the remaining tailings for other purposes.

As it is planned, the huge waste impoundment will present an eternal source of environmental problems as the forces of nature carry out the chemical and physical transformations.

The question of long term oxidation of the tailings is clearly not resolved. The poor stability of topsoil veneered at the angles of repose is not likely to maximize protection against erosion. The chemical and physical environment within the tailings structure could impose limitations upon those deep rooting species of vegetation which are necessary for ecological stability. The ability of plants to concentrate metals and introduce them into the food chain is unresolved but important.

The eventual channel changes, as a natural characteristic of Lake Creek, promise to interact with the tailings structure. When nature begins to erode and change this structure, it is probable that the fine-grained tailings material will be available for atmospheric transport during dry periods. It also appears that the method of tailings deposition will leave portions of the tailings pond perimeter dry for sufficient time to allow wind-blown particulates to become entrained. We do not feel that the generalities in the reclamation plan provide assurance of either long-term or short-term ecological protection.

The testing of concentrator reagents was performed on inappropriate species, which are not generally common to our aquatic habitat. This data was followed by glowing assumptions that these reagents will be filtered out or reduced by underlying clay or be subject to breakdown in the tailings pond. The general and optimistic tone of this discussion is devoid of any solid information. The authors of this discussion have a tendency to commit error in the wrong direction.

By the process of evaporation it would seem very possible that the reagents could become more concentrated. One of the reagents received very little discussion and should be dealt with in more detail. It is also necessary to deal with these reagents as they influence deeply rooting vegetative species.

In summary, the tailings pile will probably exert detrimental influences upon the local environment. This legacy, when it becomes severe enough will have to be dealt with by us or our descendants, and probably at taxpayers' expense.

The Troy area has become famous for road failures due to landslides. The announced intention to use the current Forest Service road seems oblivious to this problem. Although superficial efforts at widening the main access road are intended, there is no mention that these intentions constitute a remedy for the area-wide instability. Since the slurry line will be adjacent to the road, this will increase slurry line breakage probabilities. Because of the association between this project and the Kootenai Falls Dam, it is necessary to view both in a cause and effect manner.

There is tremendous potential for small scale hydroelectric power generation. This system could comprise a stairstep or staged series of generators utilizing Sparr Lake discharge. The details of this alternative have not received sufficient attention from parties interested in avoiding unnecessary degradation of Kootenai Falls. If the peak power from local generating equipment is sufficient to meet peak demands at the mine, more planning and load planning is in order. Similar to the tailings backfilling issue, all parties have assumed that the company should not suffer the inconvenience of planning and scheduling with anything in mind other than corporate convenience.

The Bureau of Mines analysis concerning production level changes probably did not include the costs of the Kootenai Falls dam or eventual removal of the tailings dump from the Lake Creek flood plain. These concepts are essential in the analysis of long-term impacts. Few people considered the Anaconda alluminum smelter as the loss of the South Fork of the Flathead. When will we finally learn to put the various causes and effects into proper perspective, especially when they are next door to each other?

TOWN OF TROY

Drawer S

TROY, MONTANA 59935

August 10, 1978

Ralph Driear
Environmental Administrator
Department of State Lands
Capitol Station
Helena, Montana

Re: Public Meeting held concerning environmental impact statement of the ASARCO mine at Mt. Vernon

Dear Mr. Driear:

At the public meeting held in Troy concerning the ASARCO-Mt. Vernon EIS, many questions were raised about the proposed mining project's impact on the social and economic environment. Of prime interest to the town of Troy are the strains it would create on housing, on law enforcement, and on the regulation of traffic. We in Troy feel that if we have to absorb negative effects, then we should also stand to gain from positive effects of the proposed mine.

With housing at a premium in this area, we need to initiate proper planning procedures to cope with the expected population influx. We in Troy feel that federal housing agencies are reluctant at this time to finance Troy-area housing projects without assurances that the Mt. Vernon mine will become a reality. Therefore, the town needs no less than one year advance notification of the ASARCO mine phases, in order to make realistic efforts to plan for orderly growth.

The State Highway Department's upgrading of U. S. Highway #2 from Kalispell to the Idaho line is presently in the planning stage. In order to inform the Department of the town's needs, we must have definite advance word on routing of ore traffic, both the proposed truck route into town and the railroad's plan for a shipping/loading area.

The possibility of creating a short-lived community along the Bull Lake road (State Highway #56) was mentioned at the Troy public meeting. This proposal lacks realism; to duplicate community facilities already available in Troy, for a project with a less than 20 year life expectancy, would seem superfluous. Improving and expanding Troy's existing community services would seem to be a logical conclusion.

Also, we strongly endorse the proposal for shuttle bus service to transport workers between Troy and the mine. A shuttle service from Troy would, again, encourage proper area growth and eliminate overburdening traffic on the mine route.

The "Boom & Bust" cycle associated with projects such as ASARCO's Troy project could be partly alleviated by timely expansion of Troy's existing community facilities, but would be measurably aggravated by building complete new facilities elsewhere in the area. Shuttle-bus transportation between Troy and the mine would utilize existing community services.

The worse possible effects on the quality of life in the Troy area will arise if the community is unable to properly plan its growth. An adequate head start on our preparations would make this project much more livable and greatly enhance the chance of preserving the life style we so dearly love.

Sincerely,

A. E. Brown

A. E. Brown
Mayor

AEB:cc

cc: Bill O'Brien
Environmental Coordinator
Kootenai National Forest
Box A.S.
Libby, Montana

NORTHWEST MINING ASSOCIATION
WEST 1020 RIVERSIDE AVENUE SPOKANE WASHINGTON 99201 (509) 624-1158 KARL W MOTE EXECUTIVE DIRECTOR

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Jackie E Stephens
Albert C Walkup
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August 11, 1978

U.S. Department of Agriculture
U.S. Forest Service
Kootenai National Forest
418 Mineral Ave.
Libby, MT 59923

State of Montana
Department of State Lands
Capitol Station
Helena, MT 59601

Dear Gentlemen:

Please accept this letter as our formal response to the Draft Environmental Impact Statement for the Porposed Plan of Mining and Reclamation, Troy Project, ASARCO, Inc.

It appears that the ASARCO plans have discussed every aspect of impact of the proposed operations. We encourage the approval of the plan, and the issuance of all permits to allow ASARCO to proceed.

It must be recognized, however, that the extent of this draft statement goes far beyond the means of many prospective operators. The depth of detailed study and the cost and time requirements to provide this extensive study is astounding. We urge both the State of Montana and the Forest Service to not allow this study to establish a precedent for future mining impact studies. Such a requirement would certainly serve to severely curtail the much needed domestic mineral production this nation needs for support for our sagging economy, and for national security.

Sincerely,

Karl W Mote
KARL W. MOTE
Executive Director

KWM:11

CABINET RESOURCE GROUP
Rt. 3, Troy, Mont. 59935

Ralph Driear
Dept. of State Lands
1625-11th Ave.
Helena, Mont. 59601

Dear Ralph,

Here are some comments on the Draft Environmental Impact Statement on the Asarco Troy Project which we would like to have included in the final statement.

I would first like to express my appreciation for your cooperation and communication with us during this process. I also would like to commend the readability of the DEIS.

We do feel that the length of time allowed for public review was inadequate, especially since the time period was begun at least a week before copies of the DEIS were generally available to the public through the Forest Supervisors Office of the Kootenai National Forest in Libby.

Some items that were insufficiently considered, or not considered at all, by the DEIS were:

1) Other potential mineral development in this area, and its increased likelihood due to this project. Mineral potential is acknowledged and is being considered by the Forest Service in the RARE II process; it should not be ignored in consideration of the impacts of this mine. Asarco has mentioned operating the mill and tailings pond after the closure of the mine, which certainly indicates that they see a definite possibility for future development. Such development would be rendered more feasible by the existence of a mill in the area, and an experienced work force.

The BPA forecasts for future power needs for this area really only make sense if large industrial development is expected. The possibility that this and other mineral developments in the area--coupled with increasing costs of transporting ore--could lead to construction of a smelter here, needs to be addressed.

2) The possible connection between Northern Lights' proposal for a dam at Kootenai Falls and the Asarco Project must be looked into. Though both companies have denied any connection for the last two years, The Western News, on April 1, 1976, quoted Jack Bingham, Asarco's Troy Project coordinator, as saying "We have a definite interest in the Kootenai Falls project." Certainly the fact that Northern Lights would supply the power for Asarco, and their claim that they need the dam to supply future demands for power, is reason enough to investigate whether these two projects are connected.

3) No projections were made for population growth and effects in the Noxon-Heron areas. These towns are closer to the proposed mine than Libby (for which 250 new people were projected), and land is cheaper. It's not at all reasonable to assume no one would move there.

4) The projected impact of 400 expected new people in the Bull Lake area is severly underestimated, and is not at all adequately assessed.

5) There is a very high percentage of elderly people in the Troy area, most living on fixed incomes. The effects the mine would have on them need to be considered.

6) The DEIS says that no water quality problems are anticipated due to seepage from the Tailings Pond, yet "The reaction of organic reagents during ponding...and during infiltration through tailings and earth materials is unknown." (p. 315.) Safe amounts for some of these reagent chemicals have not ever been established. How will the reagents react with each other? What about the increasing toxicity due to a 16-year (or perhaps many more years if the mill operates after mine closure) buildup and concentration of reagents in the pond? Tests were done on blue gills, which are not found in Lake Creek. Trout are more sensitive. So, perhaps, are people. A number of people (including myself, during last year's drought) get their drinking water directly from Lake Creek, and others have wells along it--this was apparently not considered in the DEIS.

More and more we see in the news that communities have been poisoned by sources from which "no problems were anticipated"--more complete and thorough research must be done.

7) On page 316 it is stated that channel migration of Lake Creek could cause long-term stability problems at the proposed tailings dam site, and that something would need to be done--what? Also, what would be the effect on Lake Creek of whatever measures would be taken?

8) It seems that the soils along the pipeline route are very unstable; it therefore seems likely that a 6½ mile long pipeline is apt to be a bit shakey. Statements like "it is anticipated that with careful design construction, installation and operation, this system would be relatively safe." (p. 308) are not very reassuring. How can something so long, built on land that is constantly slumping, remain intact for a minimum of 16 years?

The statement that there are no known failures of milling facilities and tailings thickeners in Colorado, Idaho, and Montana (what about other states?) tells us nothing--how many have had 6½ mile slurry pipelines built on unstable soil? What is not being said by the statement on page 309 that "There should be no water quality impacts from these structures *during the operation's life*."? (emphasis added) This seems significant in light of the statement on page 397 that "In consideration of the relationship between the proposed short-term use of the environment, and the maintenance and enhancement of the area's long-term productivity, the possibility for failure of the proposed facilities must certainly not be ignored."

9) "Failure of the tailings pond would have serious to catastrophic water quality impacts."(p. 315.) The tailings pond and pipeline are next to and crossing faults. On page 301 of the DEIS it says that if the faults became active during the life of the project, the potential for failure of either or both would be great. Page 85 says "Past earthquake history in western Montana indicates sizable earthquakes can be anticipated in the Troy area." Dr. Konizeski , at the University of Montana, in Missoula, in his *Analysis of Potential Disaster--Libby Dam, Montana*, cites several sources to state that "*northwest Montana is indeed* a tectonically active area." Bad Medicine campground, located just a few miles from the proposed mine facilities, is so named because of an earthquake in historical times.

It, therefore, is imperitive that the ability of the tailings pond and the pipeline to withstand a major earthquake be assured. Some people (who do not live along Lake Creek) may think it alright to gamble for the 16 years that the mine will produce, since there has not been a large tremor here for some time. Yet generally speaking, the longer a fault goes without moving, the more likely it is to move. If the mill remained in operation after mine closure, the threat of pipeline breakage would exist much more than 16 years; and in any case, the tailings pond would be there for a long, long time.

In addition to assurance that the pipeline and tailings pond will be able to withstand a major earthquake, there are some other things that should be required of Asarco before they are permitted to proceed.

a) Given that up to 1,169 gpm might seep out of the tailings pond, it is only reasonable that a discharge permit be required.

b) The size of the tailings pond should be reduced by putting the tailings back into the mine, and by any other methods (road fills, asphalt additive) that might also be feasible.

c) There should be a parking lot at the tailings pond site, and workers should be bused from there to the mine. The south adit road should be closed.

d) Asarco's property taxes should be prepaid, rather than reduced by 77% for the first three years of mine operation.

e) The single most important thing that should be required of Asarco is that it extend the life of the mine. This could greatly reduce the sudden influx of people into the area, thereby eliminating or reducing most of the problems that are anticipated. This might necessitate a delay in beginning production, but as the shortages of copper and silver (projected by the U. S. Bureau of Mines) begin to be felt, Asarco could extend the life of the mine and still make a profit; the lifestyles and environment of this area would not be so greatly disrupted; and the United States would have these essential minerals available in a time of need, rather than having had them used up for non-essential goods.

If the Department of State Lands wished to uphold the State policy for the environment as established by the Montana Environmental Policy Act, it might require that this be done. However, since the question of whether MEPA has "teeth" or not has not been settled, the Department has chosen not to use MEPA in making any decision regarding granting or denial of a mining permit. In chapter 4, section A, of the DEIS, the listing of laws and regulations; MEPA is not even mentioned.

It is my feeling, and that of the members of this group, that since the Department of State Lands has the option to choose whether or not to try to use MEPA in the decision making process, that it should do so, in the best interests of the people of Montana. The role of MEPA needs to be clarified; the courts could do this, and no doubt sooner or later they will. We believe this situation makes a strong case for the need for "teeth" in MEPA, and we would like to see our state government support this position.

On page 379, the DEIS states that "considering all elements studied, the (effect on) quality of life in the Troy area with mine development is overall determined to be negative...." The study unquestionably shows that wildlife would suffer. The Hard Rock Law doesn't consider these things. It doesn't consider that "a conclusion of the mining operation may lead to high unemployment and a snowballing economic decline."(p. 401.) MEPA could.

We are simply asking that along with the cost of salaries and machinery, the cost of maintaining a healthy environment and enjoyable lifestyles for future generations also be paid; otherwise we will profit nothing, no matter how much money is made.

Sincerely,

Bill Martin

Bill Martin, Coordinator

Homestead Realty
DUANE K. LOCKARD, BROKER
BULL LAKE ROAD
AT LITTLE JOE
TROY, MONTANA 59935
295-4176

August 31, 1978

Mr. Ralph C. Driear
Project Coordinator-Asarco
Department of State Lands
Sate of Montana
State Capitol
Helena, Montana 59601

Re: ASARCO Project

Dear Mr. Driear:

I attended the Environmental Impact Statement Meeting held in Troy, Montana concerning the possible benefits and adverse effects of the proposed mine on Mount Vernon. I have studied the impact statement.

It is my opinion that the benefits to the area far outweigh the adverse effects to the environment. It is obvious to me that the regulations as regard mining presently on the books will insure a clean operation.

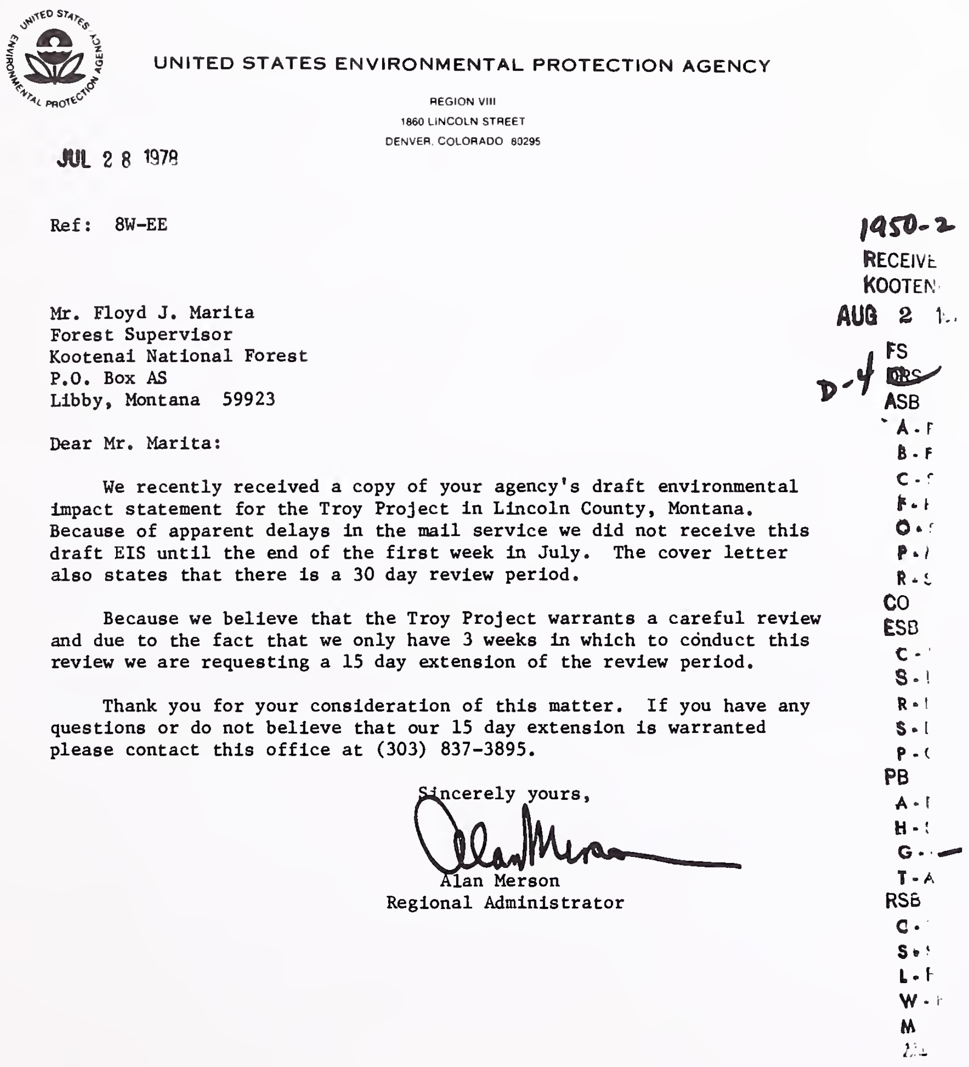
I would recommend that a permit be given to ASARCO to proceed with its proposed mine.

Sincerely,

Duane Lockard

Duane Lockard
DL/bn

3. Federal Agency Letters of Comment



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

JUL 28 1978

Ref: 8W-EE

Mr. Floyd J. Marita
Forest Supervisor
Kootenai National Forest
P.O. Box AS
Libby, Montana 59923

Dear Mr. Marita:

We recently received a copy of your agency's draft environmental impact statement for the Troy Project in Lincoln County, Montana. Because of apparent delays in the mail service we did not receive this draft EIS until the end of the first week in July. The cover letter also states that there is a 30 day review period.

Because we believe that the Troy Project warrants a careful review and due to the fact that we only have 3 weeks in which to conduct this review we are requesting a 15 day extension of the review period.

Thank you for your consideration of this matter. If you have any questions or do not believe that our 15 day extension is warranted please contact this office at (303) 837-3895.

Sincerely yours,

Alan Merson
Alan Merson
Regional Administrator

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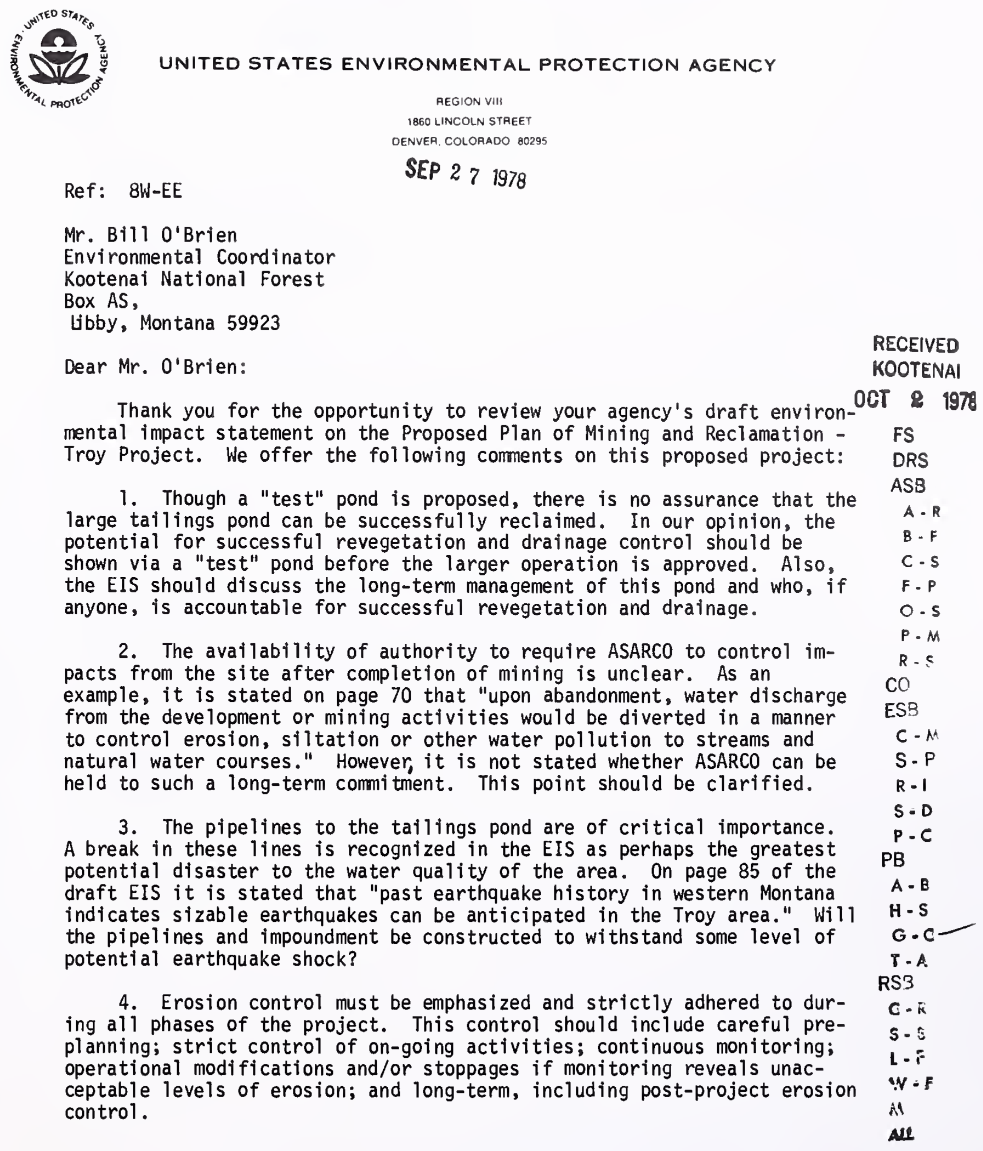

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

SEP 27 1978

Ref: 8W-EE

Mr. Bill O'Brien
Environmental Coordinator
Kootenai National Forest
Box AS,
Libby, Montana 59923

Dear Mr. O'Brien:

Thank you for the opportunity to review your agency's draft environmental impact statement on the Proposed Plan of Mining and Reclamation - Troy Project. We offer the following comments on this proposed project:

1. Though a "test" pond is proposed, there is no assurance that the large tailings pond can be successfully reclaimed. In our opinion, the potential for successful revegetation and drainage control should be shown via a "test" pond before the larger operation is approved. Also, the EIS should discuss the long-term management of this pond and who, if anyone, is accountable for successful revegetation and drainage.

2. The availability of authority to require ASARCO to control impacts from the site after completion of mining is unclear. As an example, it is stated on page 70 that "upon abandonment, water discharge from the development or mining activities would be diverted in a manner to control erosion, siltation or other water pollution to streams and natural water courses." However, it is not stated whether ASARCO can be held to such a long-term commitment. This point should be clarified.

3. The pipelines to the tailings pond are of critical importance. A break in these lines is recognized in the EIS as perhaps the greatest potential disaster to the water quality of the area. On page 85 of the draft EIS it is stated that "past earthquake history in western Montana indicates sizable earthquakes can be anticipated in the Troy area." Will the pipelines and impoundment be constructed to withstand some level of potential earthquake shock?

4. Erosion control must be emphasized and strictly adhered to during all phases of the project. This control should include careful preplanning; strict control of on-going activities; continuous monitoring; operational modifications and/or stoppages if monitoring reveals unacceptable levels of erosion; and long-term, including post-project erosion control.

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United States Department of the Interior
OFFICE OF THE SECRETARY
MISSOURI BASIN REGION
DENVER, COLORADO 80225

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SEP 5 1978

In reply refer to:
ER 78/722

Mr. Floyd J. Marita
Forest Supervisor
Kootenai National Forest
P.O. Box AS
Libby, Montana 59923

Dear Mr. Marita:

We have reviewed the draft environmental statement for the Troy Project ASARCO, Lincoln County, Montana, and have prepared the following comments.

General Comments

We find the DEIS to be well written, understandable, and generally objective. There is no doubt that a mining operation the size of the Troy Project can produce very significant environmental impacts. With certain exceptions as noted, the draft addresses those impacts directly, does a good job of assessing their significance, and suggests measures for minimizing them.

Specific Comments

The Kootenai National Forest and the Montana Department of State Lands are to be complimented on their attention to the recreational and cultural resources in the vicinity of the proposed project. ASARCO Incorporated's proposal also warrants merit as they have attempted to locate facilities in areas of low probability with respect to archaeological resources. The reconnaissance-level surveys so far undertaken are adequate at this stage of project planning. However, we recommend a comprehensive site-specific survey be performed before any ground disturbance activities begin. Results of such a survey and documentation of compliance with Executive Order 11593 and 36 CFR 800 should be included in the final document.

The final statement should show the locations of the proposed deep supply wells and monitoring wells on a geologic map to aid in appraisal of the impact assessment. Some information concerning the probable composition and depth of the aquifer to be utilized by the deep supply wells should be included, even if this can only be inferred from geophysical studies.

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5. The evaluation of potential water quality impacts from adit flows makes the assumption that future flow quality will be similar to that now exiting the test adit. What can be done if acid or other toxic conditions actually develop?

6. We do not believe that offsite impacts related to probable housing development in the Bull Lake area has been adequately analyzed. On page 352 of the EIS it is stated that the projected growth in the Bull Lake area is expected to be "11 additional dwelling units by 1995." However, on page 359 it is stated that "forty percent of the migrants (40% of 150 workers or 60 workers) will reside in the Bull Lake area." This apparent discrepancy should be clarified. In addition, the impacts of 60 new workers residing in the Bull Lake area on water quality (septic tank use) and other factors should be analyzed.

In summary, we believe that you have made a commendable effort to analyze impacts of the proposed mining operation, but the potential is present for detrimental impacts on water quality. According to EPA's system for rating draft impact statements this EIS is rated ER-1 (environmental reservations - sufficient information). Our reservations are those stated. If you have any questions about these comments, please contact Gene Taylor at 303-837-4831.

Sincerely yours,

David A. Wagner
for Alan Merson
Regional Administrator

Page 313, paragraph 1: No radiation is indicated to have been recorded from the analyses of tailing-water samples. It is not clear whether analyses were not performed or no radiation detected. If the latter, the detection limits of the analyses should be given.

Page 313, last paragraph: The worst-case analysis assumes no dissolution of metals from the tailings. This may not be reasonable for a worst-case analysis. Parrish (letter dated December 13, 1976, app. H) mentions the potential for tailings-water becoming acidic and carrying significant quantities of zinc and cadmium as it filters through the substrate. The question of monitoring the quality of seepage entering Lake Creek should be further discussed. The question whether remedial actions can be undertaken should the effects on Lake Creek be found unacceptable should also be addressed.

Page 315-316. Failure of the tailings pond is indicated to be a remote possibility, presumably during the operation of the mine. The long-term containment of the tailings should also be discussed. Diversion channels carrying flood flows around the tailings dam are likely to fail eventually, unless maintained into perpetuity. The possibility of washouts starting at the toe of the dam would then appear to be likely.

Page 8, "Responsibilities of and Relationships Between Federal Agencies." The USBM is mentioned in this section heading; however, our role is not explained in the narrative. The Bureau of Mines has no regulatory responsibilities under the mining laws nor any management authority over the subject lands or mineral resources. Ours is a consulting role with the Forest Service concerning technical matters related to mining plans.

Page 46, second paragraph. This paragraph states that if a spill were to occur from a stilling well, the impounded tailings would be removed and transported to the tailings disposal site. We see no provision for impounding tailings at the stilling wells.

Page 51, "Starter Dam Embankment." In our earlier comments, we pointed out the importance of constructing a zoned starter dam by placing more permeable materials towards the downstream side and less permeable materials towards the upstream side (see Volume II, Appendix T). A variety of materials appear to be available at the proposed damsite and such construction would produce a more stable dam at very little added cost.

Page 57, "Tailing and Pond Decant System." The following statement is quoted from our earlier comments on that subject (Volume II, Appendix T, page 5):

> "For decanting we suggest the use of two separate gravity decant lines and towers rather than a barge pump. The flat terrain does not lend itself to a deep clear water pool; therefore, the barge may have difficulties with mud. In winter, low pressure air would have to be bubbled around the barge to keep it free of ice. This action might agitate the water enough to keep the fines in suspension.
>
> Some differential settling will occur as the tailing impoundment area is raised; however, the decant lines could be designed to accommodate this problem. Leaving the gravity decant lines in place upon abandonment of the pond would aid in drainage of the area and help to prevent formation of mud flats during wet seasons. If the gravity decant system were to fail, a barge system could be initiated at a later date, whereas the gravity decant system cannot be installed after the starter dam has been constructed and filling of the pond begun."

Page 301, third paragraph. With a tailings pile as large as this one, it is probable that during dry windy spells, parts of the pile will become dry enough to allow tailing dust to become airborne.

Page 398, sixth paragraph. The report states that tremendous advances in technology would be required before a decision could be made to extract the pillars. The technology for at least partial pillar extraction exists today and is used quite frequently. The procedure is more expensive than the room and pillar methods; however, it is possible that after the initial capital costs of the propsed operation have been fully depreciated and amortized through mining of 75 percent of the orebody, the metal market and mining cost situation will be such that pillar extraction could be accomplished profitably.

Page 405, "Laws and Regulations." The USBM enforces no mining regulations. Federal mining health and safety regulations which were previously the responsibility of the Bureau of Mines are now administered by the Mine Environment and Safety Administration.

Page 414, "Groundwater." In our earlier comments, we emphasized the need for lowering the permeability of the soils underlying the tailings disposal site prior to deposition of tailings. At that time, we did not have available to us the results of the WADEVCO study on water quality reported in Table III-1, page 312, of the DEIS. This testing, and the subsequent analysis of the potential pollutant effect on Lake Creek outlined on page 313, tend to minimize the need for sealing the foundation.

If the investigators are throughly convinced that the worst case described on page 313 will not result in significant pollution of Lake Creek, then extensive sealing measures should not be undertaken. A self draining pond will result in a more stable and reclaimable structure in the long run.

It should be noted, however, that during the initial stages of the operation, as the pond is filling, tailing water will be in direct contact with soil material on the upstream side of the pond. Also, after slimes have been deposited, maximum sealing effect will not be attained until sufficient time has passed for those slimes to settle and compact.

If pollution of Lake Creek by subsurface seepage is considered a threat, then soil sealing should be considered. One method was suggested in our earlier comments. Several others are available with varying degrees of effectiveness. Simply compacting the foundation material with a sheepsfoot roller will appreciably decrease the permeability at minimal cost.

The document adequately describes the potential direct and indirect effects on fish and wildlife resources of the proposed action and major alternatives. However, though the document is generally sufficient, there are recommendations to offer for improvement in several areas.

Section II, B4 pp. 221-225; Section III, B3(d) pp. 342-343; and Section IV, B9 p. 417, describe the occurrence and projected impacts to species listed as endangered or threatened by the (U.S.) Endangered Species Act of 1973, and the (State) Non-Game and Endangered Species Act of 1973. Several references are made to "critical habitat" or "habitat identified as critical" for species covered in these sections. Section 7 of P.L. 93-205 gives authority to the Secretary of the Interior to determine "critical" habitat for threatened or endangered species. The Director of the Fish and Wildlife Service, in an April 22, 1976, memorandum to all federal and state agencies concerned with Section 7 consultations, attempted to clarify the critical habitat concept. While emphasizing that the following language was not a definition, but a concept to assist federal agencies in clarification of terms, the Director stated: "Critical habitat - means any air, land, or water area including any elements thereof which the Secretary, through the Director, FWS or NMFS, has determined is essential to the survival of wild populations of a listed species or to its recovery to a point at which the measures provided pursuant to the Act are no longer necessary. Determination will be published in the Federal Register." To date, for listed species in the planning area, the Secretary has only proposed designation of "critical habitat" for the grizzly bear. In order to avoid confusion, language in the DEIS referring to "critical habitat" should be confined to species where official designations have been proposed or determined and this limited use should be so defined. "Essential habitat," or some other equally descriptive phrase, should be used in all other cases.

On May 22, 1978, the Fish and Wildlife Service provided the Forest Service with a biological opinion indicating that the proposed ASARCO mine would not be likely to jeopardize the continued existence of the grizzly bear, or destroy or adversely modify its habitat, if ASARCO implements specific restrictions and precautions as discussed below:

1. Access to Mt. Vernon should be restricted to the north side using the present road system as proposed. Access from the south (Ross Creek side) would cross core habitat and should be prohibited.

2. Improvement of the access road will attract and increase human use of the area. The Forest Service and ASARCO should develop a road system management plan to restrict non-essential use and minimize human access to the core habitat and surrounding area.

3. ASARCO should develop an education program and appropriate firearms policies for company employees to prevent grizzly mortality from illegal killing or over-reactive self-protection measures.

4. Garbage storage and collection systems should be designed to be unattractive to bears.

5. Grizzly bear experts should be consulted prior to revegetation of disturbed sites and road grades. Proper plant species should be selected to avoid attracting bears into the area.

6. ASARCO should give consideration to a bus to transport employees from a parking area at the tailings pond into the plant site. This would minimize the potential for adverse bear-man conflicts along the access road, as well as conserving energy and reducing maintenance costs for the road.

Section 7 consultation should be referred to in the FEIS, and the above recommendations should be included.

The DEIS for the ASARCO project describes the authorities, responsibilities, and relationships between federal and state agencies involved in the management of affected lands or in the decision/permitting process. The statement does not, however, refer to the Fish and Wildlife Coordination Act or provide a map showing land ownership in the affected area.

Since this project involves potential water diversion, knowledge of land ownership is important because the Fish and Wildlife Coordination Act (Section 662a) requires that ". . . whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular state wherein the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development."

Studies of proposed water-use projects on national forest lands, which may be required by the Fish and Wildlife Coordination Act, are to be planned and conducted by the Fish and Wildlife Service in cooperation with the Forest Service and respective state fish and game agencies (Forest Service Manual 2612 - Memorandum of Understanding). Accordingly, these comments do not in any way preclude additional and separate evaluation and comments by the Fish and Wildlife Service, pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661, et. seq.). If the proposed mining project requires a permit from the U.S. Army Corps of Engineers, under Section 404 of P.L. 92-500, the Fish and Wildlife Service would be required to review the application. The Service may concur, with or without stipulations, or object to the proposed work depending on project effects on fish and wildlife resources which may be identified and evident at that time.

Sincerely,

John E Raybourn
JOHN E. RAYBOURN
Regional Environmental Officer

4. State Agency Letters of Comment

STATE OF MONTANA
DEPARTMENT OF REVENUE
MITCHELL BUILDING
HELENA, MONTANA 59601

July 14, 1978

Ralph Driear, Environmental Administrator
Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Driear,

The Department of Revenue has been asked to comment on the draft Environmental Impact Statement prepared for the ASARCO mine near Troy, Montana. Generally we find the analysis to be satisfactory and not lacking in any significant respect. There are, however, a few points which should be clarified.

On page 366 the footnote states "the Troy school district presently received $291,000 per student under this program for other Federal impact projects ..." This is probably a typographical error because at this rate the Troy school district would receive over $180 million.

The major flaw in the analysis is the mention of the fact that additional expenditures should be covered by the increase in the tax base and then mentioning the possibility of decreased mill levies by comparing Lincoln County to Rosebud and Big Horn Counties. In the long run it is possible that additional revenues may be sufficient to cover the expenditures necessitated by development of the Troy ASARCO Project. However, in the short run this is not the case because there is a substantial lag between the time first impact actually occurs and the time when the new construction becomes part of the local tax base.

As mentioned in the statement, during the construction period there will be a substantial in-migration to the impact area. These construction workers will generally live in temporary housing which will contribute little to the tax base. However, these same workers will be demanding services from local government units. There will not be any revenues from the property tax based on the gross proceeds from the mine and the mine facilities will be taxed only on the portion of the facility completed by assessment day. There will necessarily be increasing expenditures to meet the demands of the workers without accompanying increase in taxable value. The only way to raise the needed monies during construction is to raise the mill levies thereby adversely impacting local property owners.

Comparing Lincoln County to Rosebud and Big Horn Counties is misleading for several reasons. The only similarity is large scale mining development in an area with sparse population. The development of coal resources was anticipated by the legislature and the taxation of coal is designed to handle many of the costs associated with its development. This is not the case with copper mining.

In the first place the property tax based on gross proceeds of coal is much higher than that of metal mines. Coal is taxed at 45 percent of gross proceeds for strip mined coal and 33 1/3 percent for coal mined underground. The taxable percentage for metal mines is only 3 percent. In other words, gross proceeds of coal are taxed at 15 times those of copper.

The coal severance tax was designed to channel funds to impact areas while all receipts from the metalliferous mines tax go into the state general fund. Counties with coal mines originally received 4 percent of the severance tax. This rate has been lowered to 1.5 percent of the severance tax collected from within the county. In addition there are coal area highway impact funds and the grants to impact areas administered by the Coal Board. Millions of coal severance tax dollars have been returned to these impact areas. No such relief is available for Lincoln County and the associated impacts from the Troy ASARCO mine.

Since gross proceeds of the copper industry is taxed at a much lower rate than coal and since there is no analogous state sharing of the metalliferous metal mines tax, it is unrealistic to compare Lincoln County to Rosebud and Big Horn Counties. It may be possible that mill levies will decrease once the project has reached full scale production. However, it is doubtful because the basis for this assertion tends to overstate the potential for revenues by comparing revenues of coal impacted areas to potential revenues from the proposed Troy ASARCO mine. Unfortunately for Lincoln County, copper is not the revenue source to the county that coal is to Rosebud and Big Horn Counties.

Given these facts, we feel that it would be advisable for you to temper the predictions made in the revenue section of the statement.

Very truly yours,

John M Clark

JOHN M. CLARK,
Administrator
Research Division

JMC:pb

STATE OF MONTANA
ENVIRONMENTAL QUALITY COUNCIL
CAPITOL STATION
Helena, Montana 59601
Telephone (406) 449-3742

Terrence D. Carmody, Executive Director

GOV. THOMAS L. JUDGE or
Designated Representative
Lt Gov Ted Schwinden

SENATE MEMBERS
Terry Murphy, Chairman
Frank Dunkle
Joe R Roberts
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HOUSE MEMBERS
Verner L. Bertelsen
Mike Meloy
Dennis G Nathe
Arthur H Shelden

APPOINTED MEMBERS
G.W. Deschamps
Charles Doheny
Richard D Klinger
William D Spilker

July 28, 1978

Ralph Driear, Environmental Administrator
Department of State Lands
Helena, MT 59601

Dear Mr. Driear:

I have read the Draft Environmental Impact Statement for ASARCO's Troy Project and would like to submit the following comments.

I am concerned about the failure of the EIS to address the secondary impacts of the Troy Project on the upper Bull River Valley area in Sanders County. As the EIS points out, the predicted influx of 400 new residents to the Bull Lake area of southern Lincoln County will lead to a deterioration in air quality, and to land developments which might affect the area's aesthetic quality and wildlife habitat. Considering the significance of these impacts, it is puzzling that the upper Bull River Valley is not included in the discussion of these impacts. That area, like the Bull Lake Valley, is an important scenic and recreational resource, and is equally sensitive to the impacts of development. Given its attractiveness and its proximity to the mine it seems a likely site of mine-related land development. The EIS however, dismisses the likelihood of development in the Bull River Valley rather arbitrarily. It states that, "Although it is possible to define the Bull Lake area to extend into the adjacent county (Sanders County) it is projected that the impact in that county would be relatively insignificant." No explanation of why it is considered insiginificant is provided. If there are legitimate reasons for ignoring the possible mine related impacts on the upper Bull River Valley, they should be given. If not, the possible impacts on this area require further study.

It also appears that the draft EIS underestimates the amount of land that will be developed by the new residents of the Bull Lake area. Apparently, the same per capita land use figures used in the 1971 Libby Comprehensive Plan were used to project the land requirements of the 400 new residents of the Bull Lake area. The draft EIS claims that these 400 new residents will require the development of only 45 acres of land.

Projecting an urban density for the Bull Lake impact area ignores a widely recognized demand in western Montana for large lots in non-urban areas. It also overlooks the policy of the Lincoln County Planning Board to discourage high density subdivisions in areas over three or four miles from existing service centers such as Troy or Libby. Whether or not this

policy changes to accomodate the expected growth in the Bull Lake area, it is likely that many new residents of the Bull Lake area will purchase large lots in a non-urban recreational setting.

In addition, Montana's Sanitation in Subdivisions Law requires that lots served by individual water and sewer systems be a minimum of one acre in size. Assuming the nine individuals per acre of developed land the EIS projects, and the 3.4 individuals per dwelling unit the Troy area currently averages, land developed in the Bull Lake area would average approximately 2 1/2 dwelling units per acre. Unless these new land developments are served by public sewer and water, the likelihood of which is discounted in the EIS, the density the EIS projects would be inconsistent with the state sanitation laws.

When one considers the current demand for large lots in rural areas, the state sanitation laws, and the fact that the impacts of land development are felt far beyond the boundaries of the lots themselves, it seems safe to suggest that predicting that only 45 acres of land will be developed in the Bull Lake area and claiming that impacts on the Bull River Valley need not be studied at all badly underestimates the Troy Project's secondary impacts. Land development in the upper Bull River Valley and the Bull Lake Valley should be more carefully reviewed in the final EIS.

A final comment on land development; it would be helpful if the maps showing private lands in the impact area, the maps delineating slopes in excess of 15%, and the map showing the approximate location of the 100 year flood plain were combined. This would give the reader a better grasp of what areas are developable.

One of the major potential impacts of the Troy Project is a failure of the tailings pond dike. The EIS characterizes Lake Creek as subject to channel widening and channel changing, and states that these processes could cause long term stability problems at the proposed tailings dam site. Although page 316 promises a discussion of mitigating steps in chapter four, the EIS does not follow through on that promise. The impact of a tailings pond dike failure on water quality in Lake Creek and the Kootenai River would be so severe that the possibility of such an event, and steps which could be taken to prevent it, should be thoroughly explored in the Final EIS.

Thank you for the opportunity to comment.

Sincerely,

TERRENCE D. CARMODY
Executive Director

By John Westenberg
John Westenberg

cc: Bill O'Brien
Kootenai Forest

TDC/JW/bj

DCA MONTANA DEPARTMENT OF COMMUNITY AFFAIRS
Capitol Station, Helena, Montana 59601

Thomas L. Judge
Governor

August 9, 1978

Mr. Ralph Driear
Environmental Coordinator
Department of State Lands
Capitol Post Office
Helena, Montana 59601

Dear Ralph:

We have reviewed the draft environmental impact statement for the plan of mining and reclamation for the proposed ASARCO, Inc. Troy Project in Lincoln County. As Montana's community affairs agency our greatest concern is with that portion of the EIS which deals with community-related impacts. While probably no EIS has ever really been deemed "adequate" by an agency or individual reviewing for his area of concern, the Troy draft does provide a more thorough discussion of the social and economic environment than I have seen to date in other EIS's. We also recognize the difficulty of assessing and predicting socioeconomic impact when the impact will probably be dispersed over three general areas of the county, as is the case with the ASARCO project.

Unfortunately, the potential utility of the EIS will be reduced by the narrowness of its scope. Other projects proposed for the Lincoln County area for approximately the same time frame will compound the potential environmental impacts to be sustained by the area, These projects would include:

1) the proposed Kootenai River re-regulating dam below Libby Dam;
2) the planned U.S. Highway 2 improvement project;
3) the planned Yaak River road improvement project, and
4) the proposed Northern Lights, Inc. 115KV transmission line from Troy to the Mt. Vernon mine site.

In addition, currently under study is a Corps of Engineers proposal for a hydro-electric dam at Kootenai Falls. We are well aware of the constraints of the EIS process, however, it may be helpful to the reader if the EIS included a brief description of these other activities which will be occurring coincidently with the ASARCO project.

Harold A. Fryslie, Director 406/449-3494

In describing the Troy water system the EIS includes information on capacity and distribution but does not discuss the condition of the system. I have enclosed a copy of a grant application submitted this May by the Town of Troy to the U.S. Department of Housing and Urban Development under the Community Development Block Grant Small Cities Program. (Troy was an unsuccessful applicant.) This information should be reflected in the discussion of the Troy water system on pages 269, 270, 351 and 384. According to our information the Troy water system has been ranked number one in the state by the Department of Health and Environmental Sciences in terms of its need for improvement.

On page 396 the EIS projects that 45 additional acres will be required in the Bull Lake Area to house and service the mine impact population. This would mean a population density of approximately 9 per acre. This seems unlikely unless a major mobile home park with central water and sewer is developed. Given the life span of the mine and the general preference of area residents for larger rural tracts (one to five acres commonly) we would anticipate that a much larger land area would be required for worker housing than the EIS suggests.

It would be refreshing if someday we can get the social impact assessment writers to resist the urge to invent terminology, i.e. "small townness" and "independency." This practice only further obfuscates an already excessively subjective analysis.

We were frustrated by the blithe generalities contained on pages 420 to 425 regarding mitigation of impacts. The discussion on these pages stopped short of providing a practical assessment of mitigation measures. For example, the discussion on page 421 regarding Troy's sewer and water systems leaves us with, "The community could accelerate efforts to obtain funding for improvements to the water system and construction of a centralized sewage system." How can we realistically assess the efficacy of the suggested mitigation measures unless the author follows up his suggestion and identifies such potential funding sources, the amounts of financial assistance available, and assesses the likelihood of Troy qualifying for this assistance?

On page 367 the EIS identifies a major problem; "Of all the local government entities in Lincoln County, it is likely the communities of Libby and Troy will experience the greatest expenditure impact with the least offsetting direct revenues." This important issue is not even addressed in the mitigation discussion.

We have appreciated the sincere efforts of the Department of State Lands to work with us in developing an approach to social and economic impact assessment that will not only aid the department

Mr. Ralph Driear
August 8, 1978
Page 3

in its deliberations but will also aid the local community in preparing for potential impacts. While the socio-economic portion of the ASARCO EIS does not fulfill all our hopes we are pleased with the cooperation we have received. We may not have the formula precisely developed but we are learning.

Thank you for the opportunity to comment.

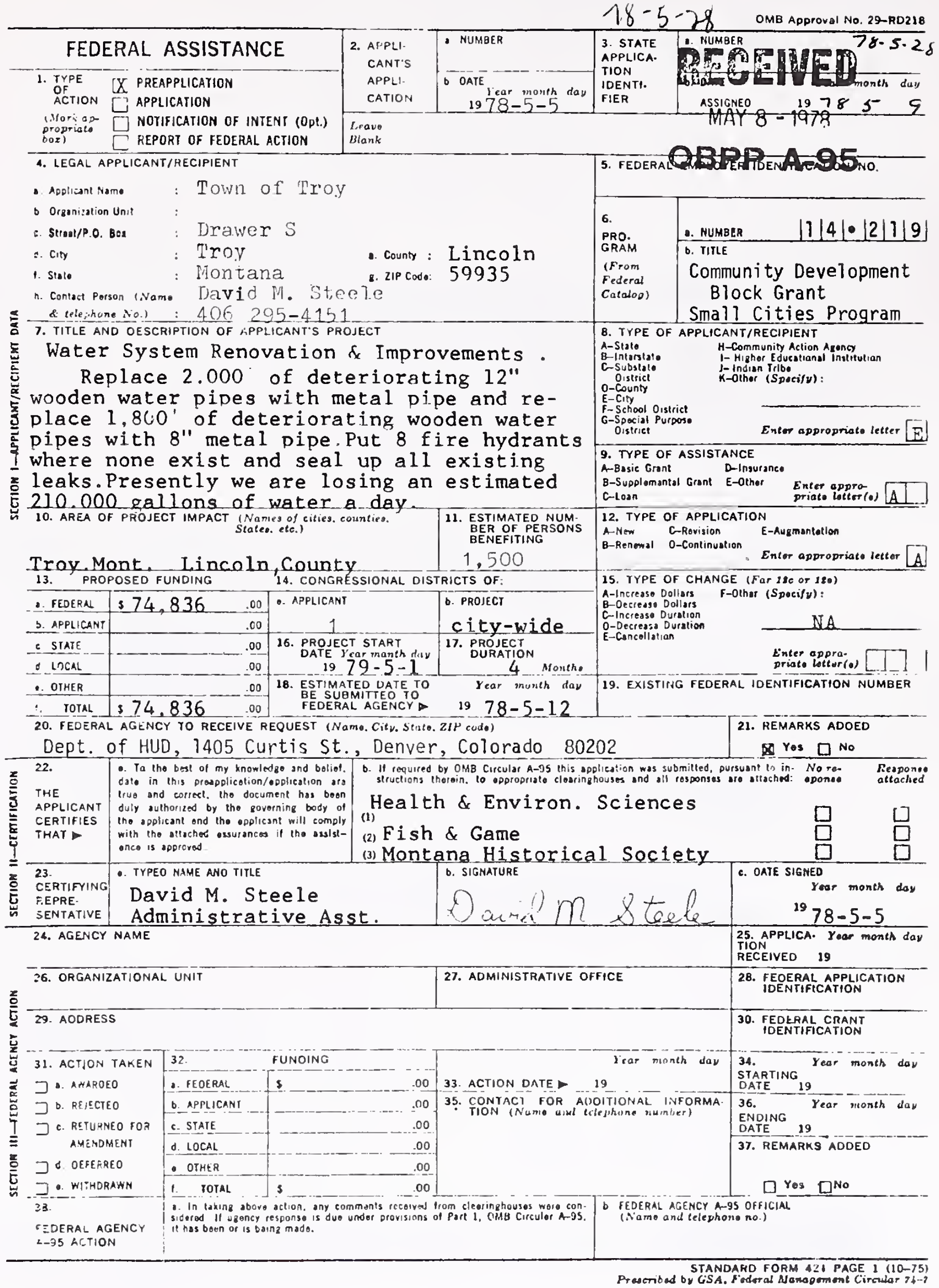
Sincerely,

David Cole

David Cole, Chief
State Land Use Planning Bureau
DCA/Planning Division
(406) 449-3757

DC/ke

Enc: a.s.



78-5-28 OMB Approval No. 29-RD218

FEDERAL ASSISTANCE

1. TYPE OF ACTION (Mark appropriate box): ☒ PREAPPLICATION ☐ APPLICATION ☐ NOTIFICATION OF INTENT (Opt.) ☐ REPORT OF FEDERAL ACTION

2. APPLICANT'S APPLICATION: a. NUMBER: b. DATE Year month day 19 78-5-5

Leave Blank

3. STATE APPLICATION IDENTIFIER: a. NUMBER 78-5-28; b. DATE ASSIGNED Year month day 19 78 5 9

RECEIVED MAY 8 - 1978 OBPP A-95

4. LEGAL APPLICANT/RECIPIENT
a. Applicant Name : Town of Troy
b. Organization Unit :
c. Street/P.O. Box : Drawer S
d. City : Troy
e. County : Lincoln
f. State : Montana
g. ZIP Code: 59935
h. Contact Person (Name & telephone No.) : David M. Steele 406 295-4151

5. FEDERAL EMPLOYER IDENTIFICATION NO.

6. PROGRAM (From Federal Catalog): a. NUMBER 14•219; b. TITLE Community Development Block Grant Small Cities Program

SECTION I—APPLICANT/RECIPIENT DATA

7. TITLE AND DESCRIPTION OF APPLICANT'S PROJECT
Water System Renovation & Improvements.
Replace 2.000 of deteriorating 12" wooden water pipes with metal pipe and replace 1,800' of deteriorating wooden water pipes with 8" metal pipe. Put 8 fire hydrants where none exist and seal up all existing leaks. Presently we are losing an estimated 210.000 gallons of water a day.

8. TYPE OF APPLICANT/RECIPIENT
A–State
B–Interstate
C–Substate District
D–County
E–City
F–School District
G–Special Purpose District
H–Community Action Agency
I–Higher Educational Institution
J–Indian Tribe
K–Other (Specify):
Enter appropriate letter: E

9. TYPE OF ASSISTANCE
A–Basic Grant
B–Supplemental Grant
C–Loan
D–Insurance
E–Other
Enter appropriate letter(s): A

10. AREA OF PROJECT IMPACT (Names of cities, counties, States, etc.): Troy, Mont. Lincoln, County

11. ESTIMATED NUMBER OF PERSONS BENEFITING: 1,500

12. TYPE OF APPLICATION
A–New C–Revision E–Augmentation
B–Renewal D–Continuation
Enter appropriate letter: A

13. PROPOSED FUNDING	
a. FEDERAL	$ 74,836 .00
b. APPLICANT	.00
c. STATE	.00
d. LOCAL	.00
e. OTHER	.00
f. TOTAL	$ 74,836 .00

14. CONGRESSIONAL DISTRICTS OF: a. APPLICANT 1; b. PROJECT city-wide

15. TYPE OF CHANGE (For 12c or 12e)
A–Increase Dollars
B–Decrease Dollars
C–Increase Duration
D–Decrease Duration
E–Cancellation
F–Other (Specify): NA
Enter appropriate letter(s):

16. PROJECT START DATE Year month day 19 79-5-1

17. PROJECT DURATION 4 Months

18. ESTIMATED DATE TO BE SUBMITTED TO FEDERAL AGENCY ▶ Year month day 19 78-5-12

19. EXISTING FEDERAL IDENTIFICATION NUMBER

20. FEDERAL AGENCY TO RECEIVE REQUEST (Name, City, State, ZIP code): Dept. of HUD, 1405 Curtis St., Denver, Colorado 80202

21. REMARKS ADDED ☒ Yes ☐ No

SECTION II—CERTIFICATION

22. THE APPLICANT CERTIFIES THAT ▶
a. To the best of my knowledge and belief, data in this preapplication/application are true and correct, the document has been duly authorized by the governing body of the applicant and the applicant will comply with the attached assurances if the assistance is approved.
b. If required by OMB Circular A-95 this application was submitted, pursuant to instructions therein, to appropriate clearinghouses and all responses are attached:

	No response	Response attached
(1) Health & Environ. Sciences	☐	☐
(2) Fish & Game	☐	☐
(3) Montana Historical Society	☐	☐

23. CERTIFYING REPRESENTATIVE: a. TYPED NAME AND TITLE David M. Steele Administrative Asst.; b. SIGNATURE David M Steele; c. DATE SIGNED Year month day 19 78-5-5

SECTION III—FEDERAL AGENCY ACTION

24. AGENCY NAME
25. APPLICATION RECEIVED Year month day 19
26. ORGANIZATIONAL UNIT
27. ADMINISTRATIVE OFFICE
28. FEDERAL APPLICATION IDENTIFICATION
29. ADDRESS
30. FEDERAL GRANT IDENTIFICATION

31. ACTION TAKEN
☐ a. AWARDED
☐ b. REJECTED
☐ c. RETURNED FOR AMENDMENT
☐ d. DEFERRED
☐ e. WITHDRAWN

32. FUNDING	
a. FEDERAL	$ .00
b. APPLICANT	.00
c. STATE	.00
d. LOCAL	.00
e. OTHER	.00
f. TOTAL	$ .00

33. ACTION DATE ▶ Year month day 19
34. STARTING DATE Year month day 19
35. CONTACT FOR ADDITIONAL INFORMATION (Name and telephone number)
36. ENDING DATE Year month day 19
37. REMARKS ADDED ☐ Yes ☐ No

38. FEDERAL AGENCY A-95 ACTION
a. In taking above action, any comments received from clearinghouses were considered. If agency response is due under provisions of Part 1, OMB Circular A-95, it has been or is being made.
b. FEDERAL AGENCY A-95 OFFICIAL (Name and telephone no.)

STANDARD FORM 424 PAGE 1 (10-75)
Prescribed by GSA, Federal Management Circular 74-7

Narrative

Troy is a small community of approximately 1450 people located in the mountainous northwestern corner of Montana. The community services an outlying area more than double its population and its nearest neighbor is twenty miles away. Troy is an area of low income and high unemployment (20-22%), with a large segment of its residents living on a fixed income.

Expansion has already begun in Troy and is expected to escalate sharply in the near future. A review of expected expansion is as follows:

1. U.S. Forest Service Engineering Station Expansion Unit is already committed to 30 additional families.
2. ASARCO mine developement at Bull Lake Mine expects to spend an average of $70 million in payroll and employ 400 workers yearly.
3. Proposed Federal Government Kootenai River hydro-electric project.
4. U.S. highway #2 improvement is now in the planning stage.

Therefore, if Troy is to accomodate this growth as shown above, the town will have to offer services to the people to compensate for the higher taxes. The existing water supply system is antiquated and too incompetent to handle any influx of people. The existing water system has an abnormally high per capita use (381 gallons per day per capita, based on 3.1 people per connection. During peak usage, consumption nearly doubles to 712 per capita per day. This can only be attributed to the leaks in the existing wooden water mains.

The Town of Troy has 3,800' of wooden water pipes that have deteriorated to the extent that it is impossible to stop the leakage. The estimated loss is 220,000 gallons/day and extensive damage due to water seepage has been done to the streets. It is not feasible to provide water to these new residents unless the system is tighten up and the wooden pipes replaced.

Becaused of Troy's high unemployment (20-22%) and low income level, money for repairs and maintenance is non-existent. The town is suffering from the effects of years of neglect and lack of planning that will reach crisis proportion in the very near future with advent of expansionism that we are unable to control without government support.

Thomas L. Judge, Governor

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION **DNRC**

MEMBERS OF THE BOARD - CHAIRMAN CECIL WEEDING, J. VIOLA HERAK, DAVID G DRUM, DR WILSON F CLARK, DR. ROY E. HUFFMAN, WILLIAM H BERTSCHE, CHARLES L. HASH

Ted J. Doney, Director

August 10, 1978

Mr. Ralph Driear
Environmental Administrator
Department of State Lands
Helena, MT 59601

Dear Ralph:

After reviewing the joint State Lands-Forest Service Draft Environmental Impact Statement on the Proposed Plan of Mining and Reclamation for the ASARCO Troy Project, the Department offers the following comments.

General Comments

First, the document is well-written and well-researched and has brought together an impressive amount of information. The authors of the statement should be complimented on their efforts.

However, much of the information presented is irrelevant to impact assessment and renders the report unnecessarily cumbersome. It reads in places like a baseline inventory report, and, as such, it is typically heavy on inventory data and light on impacts analysis.

A discussion of relative or absolute significance of impact would have been extremely helpful; at least, the term "significant impact" should have been defined for each section of the EIS. It is quite difficult to sort through the vast bulk of data and pick out what's really important (and would be significantly affected by the project) and what's just "filler" (included for the sake of completeness).

For example, many pages of the report are filled with quantitative baseline-type data on diatoms, reptiles, small mammals, etc., and yet the impacts analysis fails to show any basis for evaluating the significance of impacts to these species or species dependent on them. Concern is expressed in the report for displacement and mortality of five species of songbirds noted on the mill site. These are surely unimportant impacts when compared to habitat alteration, which has a long-term affect on carrying capacity; yet even such a change in carrying capacity at the mill site is of doubtful significance for these abundant and widespread species. Yet the reader is left with the impression that this is something to be concerned about. This approach tends to de-emphasize the importance of the analysis of impacts which are really likely to be significant.

32 SOUTH EWING, HELENA, MONTANA 59601 (406) 449-3712

Regional Impacts

Department of State Lands defines it scope quite narrowly in deciding what potential impacts it would consider. In particular, no attempt was made to discuss the cumulative impacts of the proposed ASARCO project together with other current and projected developments in the Lincoln-Sanders county vicinity. The argument given was that such cumulative impacts were more properly the focus of a regional EIS rather than a project specific study. This argument is inadequate for the following reasons: (1) There is no provision in existing statutes to initiate a regional EIS since the triggering mechanism in the EIS process is generally an individual permit application (as in this case) or an agency program evaluation (e.g. oil and gas leasing policy). Hence, regional impacts of the ASARCO Troy Project must be evaluated in this EIS if they are to be evaluated at all. (2) The construction of the facilities proposed by ASARCO and by Northern Lights for the Lake Creek-Mount Vernon area will have the effect of changing the economics of other potential ventures in the area. For example, the existence of the concentrator may make the development of other ore bodies feasible, where previously none of them could have supported a concentrator on its own and could not have been profitably developed if the ore had to be hauled to other locations. Another example is the possible industrial development associated with the existence of the power line. Since the 115 KV line will have significant excess capacity other ventures requiring large amounts of power may now be served in the area with no additional transmission lines required, whereas in the absence of the ASARCO project such ventures would have been required to justify the investment in the line. These changes in the economics of other ventures are a result of the proposed action and as such their likelihood and their impacts should be evaluated.

Productivity Loss

The sections dealing with the flora could be strengthened by explaining how the various forest habitat types differ in productivity and recovery rate and by examining forest impacts in light of long-term loss of the productivity base rather than initial clearing of timber.

For instance, while the value of timber existing on the 1,050 acres affected by the project has been determined, little mention has been made of the potential loss of production during the life of the project. Using mean yield capabilities presented by Pfister, et. al. in "Forest Habitat Types of Montana" for the two most prevalent habitat types, WRC/CLUN and WH/CLUN, the foregone production of forest products would be approximately 100,000 cubic feet per year or 1.9 million cubic feet for the life of the project.

Also, the statement "Reclamation, if successful, would return those areas disturbed during the life of the project to a productive capacity" would appear to be somewhat optimistic. Changes in the chemical and physical structure of the affected area could affect the flora for a significant length of time beyond the initial reclamation attempt. This affect should be considered in determining long-term effects of the project on both flora and fauna, aesthetics, recreation, etc.

Water Supply

DNRC has received five applications for beneficial water use from ASARCO, Inc. These are summarized on the next page.

Application No.	Source	Point of Diversion	Purpose	Amount
18093	Stanley Creek, alluvial gravels	SE¼, S.26, T.29N.,R.34W.,	Potable water supply	50 gpm not to exceed 80 af/y for 20 years
18094	Two wells, Stanley Creek Drainage	NE¼,S.26, T.29N.,R.34W.,	Processed water	1600 gpm not to exceed 2500 af/y for 20 years
18095	Subterranean flow from mine adit	SE¼, S.26, T.29N.,R.34W.,	Processed water	1000 gpm not to exceed 1500 af/y for 20 years
19319	Stanley Creek	SE¼, S.26, T.29N.,R.34W.	Drilling & testing	20 gpm not to exceed 2 af/y for 6 months ending Jan.1'79
19346	Ross Creek	NE¼, S.7, T.28N.,R.33W.,	Drilling & Testing	3 gpm not to exceed .2 af for six weeks ending Sept. 1, 1978

Processing of these applications is pending field investigations and public noticing requirements to insure compliance with the criteria for permit issuance under the Montana Water Use Act.

Water Quality

It would be informative to list the chemical composition of reagents which make their way to the tailings pond (e.g., Dowfroth 250, Pineoil, Xanthate) and to explain what happens to these compounds (which are apparently released in sizeable quantities) in the tailings water and what their ecological effects might be. Do they evaporate, condense, absorb, or accumulate to high concentrations in recycled tailings water?

Miscellaneous Comments

(1) The land use inventory (Fig. II-20) seems incomplete. Callows Island should be shown as residential; other existing or planned subdivisions were not shown on this map.

(2) The discussions of "quality of life" on pages 264 and 376-379 should address specifically such transient groups as tourists and visiting recreationists, hunters, and fishermen.

(3) While the DEIS did address the need for protection from structural fire, no mention was made concerning the increased probability of non-structural fire starts. The increased use of the forests in the project area will surely increase this possibility; at the same time, the values of the proposed structures and the affect of damage to the tailings pipeline will necessitate rapid response to a fire start. The end result could be increased forest fire protection costs.

I hope these comments are helpful in your efforts to produce the final EIS.

Sincerely,

WAYNE WETZEL
ENVIRONMENTAL COORDINATOR

WW/nj

GEOLOGY
University of Montana
Missoula, Montana 59812

August 10, 1978

Ralph Driear
Environmental Administrator
Dept. of State Lands
Capitol Station
Helena, Mt. 59601

Dear Mr. Driear,

You asked that I review the dEIS on the Troy, ASARCo project. There is a great deal of information in the draft and supplement and I have frankly not had sufficient time to conduct a very thorough review. I shall thus confine my remarks to specific geologic and hydrologic sections, within my particular area of professional experience.

General Geology and Hazard evaluation:

Two general comments are necessary.

1.) Seismic Hazard:

I feel that the dEIS has mis-judged the seismic hazard in the region and that this has been carried through the assessment of impact of mine-collapse, tailings-pond dam failure, and general slope stability problems. The Bull Lake fault, located 4 miles east of the project site, is doubtless part of a fault system of several faults that are responsible for the Lake Creek Valley. These include the Leonir fault and the other unnamed North-South faults mapped and unmapped, passing directly through the tailings pond site and within 1.5 miles of the mine site. All of these collectively should be considered active and should be identified with the potential activity of the Bull Lake fault.

The U.S. Corps of Engineers, Seattle office, under the direction of geologist Dick Galster, has determined that the 100-year magnitude of expectable earthquakes in the region is a Richter M 6.5 to 7.0. Accelleration along the Bull Lake fault system, in the immediate vicinity of the fault, would thus reasonably be 0.7 to0.9g, or up to 90% that of gravity. Dave Slemmons, of the University of Nevada, Dept. of Geology, a world reknown expert in fault evaluation, has suggested in his report to the Corps of Engineers on the Libby Reregulating Damsite and regional seismicity, that the Bull Lake fault system in the Lake Creek Valley may have as much as 60 feet of Holocene (last 10,000 years) offset vertically (horizontal offset unknown). Without further and considerable detailed fault evaluation at the proposed mine and tailings site, I would feel that it was manditory to design dam and structural facilities of the mine to withstand 1.0 g acce leration with an offset of up to 20 feet along a possible fault beneath the tailings pond. This offset could be reduced or eliminated entirely by careful site engineering and evaluation, but the accel eration must be accomodated.

It is clear from the dEIS that this is not within the design of the proposed retaining dam at the tailings pond, which was actually proposed to be unzoned earth fill, and the mine room-and pillar design. I am confused by the U.S. Bureau of Mines analysis (Appendix T, V. II) of mine safety based upon a value of 0.1 to 0.4 g to realize a factor of safety of 2.7 for the mine roof. I believe that the USBM acceleration figures are not at all conservative and are probably in error. I would suggest adopting the Corps of Engineers analysis for determination of a design earthquake for a safety analysis, and would strongly urge that impact assessment be entirely different for the tailings dam in that failure (rapid) be assumed unless thoroughly different design and site evaluation be undertaken by ASARCo.

2.) A second and related general point is that the dEIS should much better address the long-term use of the mill-site and tailings pond. The writers seem to consider only the Mt. Vernon ore body and only the immediate future of the facilities and their impact. This is very unrealistic and, I believe, inadequate. There are many other similar copper ore bodies in the immediate vicinity that will certainly be milled and concentrated at the ASARCo site after (and possibly during) the development of the Mt. Vernon site. ASARCo knows this full well since they have done much of the exploration in the area and hold many of the claims. The Mt. Vernon ore volume is perhaps only 20% of that easily accessable in the immediate vicinity. All that is needed for development of the other mines is the economic facilitation of the first mine-mill complex.

Once the Troy project is begun, the value of the adjacent claims will increase greatly and the economics of recovery of a multi-mine complex become marginally favorable. Through the next 20 years, as the rate of return drops close to 15%, the adjacent orebodies will certainly be opened. This is clear from the U.S Bureau of Mines simple economic (static) model (Fig. 1, p. 4, App. T, V. II). Further, by increasing the production rate above the 8500 tons per day initial max. rate, the economic favorability of longer haulage distances of 15 miles or more becomes positive (Fig. 2, ibid). Thus the Ross Point claims, 3 miles South in Ross Creek could be conveyered through the mined-out main Mt. Vernon adit to the mill. Following this, the Star Gulch Group of claims, 5 miles south of the Ross Creek group could be accessed followed by the Chicago Peak group and others at greater distances.

It seems manditory to accomodate the cumulative impact of the total project contemplated by ASARCo and other claim owners in this EIS, since the first development is the "keystone" for much more. I thus find the sociologic and cultural impact sections inadequate, and the physical impact sections incomplete. Tailings, for example, will cover a much larger area that proposed north of Bull Lake, and groundwater leaching, hydraulic geometry, and other impacts will doubtless be much larger.

Specific Comments, Hydrology:

A) Climate: The climate section is weak. No mention is given of reclamation climate. Emphasis seems to be on means, rather than extremes. Drought duration-intensity analysis, excess precipitation duration and resulting high groundwater levels, maximum rainfall intensity and thus slope stability and erosion potential are all needed. These are straightforward methodologically, and the data are available regionally to extend and synthesize local records for estimates of these parameters.

B) Streamflow: Inadequate data base and inadequate evaluation of regional data have led to emphasis again on means rather than extreme limiting values. We need to know what the 100-year storm runoff will be and how this will be impacted by altered land use and runoff-infiltration parameters. This is necessary because we must assess the changes in frequency of flood and low-flow events to be expected offsite downstream from the project. Are these changes to be kept within 10% limits, or are they greater? How will this affect channel geometry, stream gradients, sediment transport, habitat values, stream patterns, aggradation, flood hazard, etc.? The data base is adequate to model these and other impacts, albeit not a good as one would like.

c) Baseflow: It is very difficult to piece together from the dEIS and assessment of impacts of withdrawals of make-up water and dewatering of the mine upon the baseflow the the tributary streams that will receive leachate from the tailings area and runoff from the mine operations. The Water Quality Impacts section (V I, p. 312-315) is based upon an assumed constant base-flow for dilution of about 50 cfs in Lake Ck. The existing stream gauging data suggest that this is a reasonable value - for today, prior to mine development. Twenty to 60 years of make-up water pumping could decrease this during dry years, thus causing the effluents to exceed present allowable limits unless additional surface waters were diverted to Lake Creek. While this is perfectly feasible, its impact should be addressed. A possible genuine error is made on p. 316 in the discussion of Stanley Creek Well Field wherein the annual acre-foot water requirement is divided to assume a continuous flow rate of 3.8 cfs to show that there would be minimal impact upon base-flows for dilution. Although not clear, this is illogical since make-up water would be needed most during prolonged drought in summer months when pumping would have to be at higher rates and base-flow reductions would be proportionally greater.

d) Abandoned Mine Drainage: How is this handled? How long will sealing of the mine work? Has it ever worked in this kind of mine at this scale? Are sulfides present to cause acid-mine drainage problems on moderate scale after full mine development of maximun surface area?

e) Frequency-Magnitude analyses: These are nowhere to be found for any parameter from streamflow to rainfall and seismic activity. Since impacts are assessable on a probabilistic bases, these should be presented. For example, a 100-year rainfall event at Troy, based upon the 10-years of data in Appendix E, would be 53.18 inches. A 100-year low event would be 22.77 inches. Are these Log Pearson

Type III analyses valid if the Troy record is normalized for a longer period of record for adjacent cities? Was 1974 a 10-year frequency event or larger? Is the unusually high Standard Deviation (variance) of monthly precipitation values a peculiar quirk of the decade of sampling, or is it typical of the site? Must we thus be very cautious about estimating impacts based upon such a short record?

Analysis of the annual precipitation series indicated that, for the Troy Ranger Station:

a 200-year rainfall is	55.335"
100-year	53.179
50-year	50.886
25-year	48.414
10-year	44.747
Mean Annual Precip.	35.709
100-year low	22.769

f) Cumulative hydrologic impact: What would happen if the Troy-ASARCo project did catalize development of the adjacent claims in northwestern Montana, including ASARCo Ross Point claims, the disputed 104 Northwest Mining/ASARCo claims at Starr Gulch, those at 7-Point Mountain, Chicago Peak, and others in the Lake Creek watershed? Since the mill is to stay open for local ore processing after the Troy Project life, these immediate watershed disturbances should be assumed and factored into any EIS for the mill. ASARCo's Bear Creek claims and Beaver Creek sites further south could also be considered peripherally. The 1800 gpm discharge through the tailings to the Lake Creek System is bound to continue for many decades and the cumulative water quality, geochemical, and flow volume effects should be assessed.

Sincerely,

Robert R. Curry

Professor - Environmental Geology

cc: Bill O'Brien, Kootenai N.F.

MONTANA HISTORICAL SOCIETY
225 NORTH ROBERTS STREET • (406) 449-2694 • HELENA, MONTANA 59601

August 11, 1978

Mr. Ralph Drier, Environmental Coordinator
Department of State Lands
Capitol Station
Helena, Montana 59601

RE: Draft Environmental Impact
Statement, Troy Project
ASARCO

Dear Mr. Drier:

Thank you for the copy of the survey report by Dale Fredlund, 1974. Mr. Fredlund is confident that he covered the area intensively, and that no sites are located in the project boundaries.

I would caution that previous disturbance in the area created a difficult situation. It is possible, however, that undisturbed cultural deposits remain in the flood plain area. I would recommend that the tailing pond area be tested to determine if subsurface deposits exist.

Thank you for the additional information.

Sincerely,

Ken Korte
State Historic Preservation Officer
by Edrie Vinson, State Historian

KK:EV:rgh

B. Public Meetings

Three public meetings were held at Troy, Noxon, and Libby, Montana, on July 24, 25 and 26, 1978, respectively, to obtain comments on the ASARCO Troy Project Draft EIS. The following section contains those comments received at the public meetings pertinent to the EIS. A great many people offered comments at the meetings, often without knowledge of the information contained in the EIS, or of a nature not pertinent to the review of the EIS. Those comments are not presented in this document, as the authors felt that they were not of direct value to the improvement of the draft EIS.

1. Troy ASARCO EIS meeting - July 24, 1978

Commentators

* - Letters Received

Laurie Blazich* - Cabinet Resource Group

- The local communities will suffer economically because of the Tax Development Incentive Program, which would allow ASARCO three years with reduced taxes. ASARCO should be made to prepay taxes to allow communities to prepare for the mine's additional population.

- The EIS underestimated the impact of additional students upon the existing school facilities and the impacts resulting from additional welfare caused by a larger population.

Steve Gibson - USFS

- The EIS should have better defined the maximum amount of disturbance that could occur within the pipeline and utility corridor.

Bill Martin* - President, Cabinet Resource Group

- Longer time frames are needed for the public to adequately review the EIS. As much tailing as is possible should be placed back into the mined out portion of the mine to reduce the amount of valuable wildlife habitat needed at the site of the tailing pond.

- EIS should have contained population projections for the Heron and Noxon areas.

- Information contained in the EIS on the number and location of domestic wells along the Lake Creek drainage may not be accurate, as many people in the area do not record wells when they are drilled.

- The mine life should be extended to take advantage of the increased value of metals in the future. Perhaps the Montana Environmental Policy Act could be used as the means to require the project approval to be based on the mining schedule that results in the least damage to the environment.

- If the tailing pond water seepage is not seen as damaging to the Lake Creek system, the tailing pond water should be used by ASARCO for domestic purposes and thereby reduce the need for the fresh water wells. What effect will the seepage into Lake Creek have for those individuals that use the creek water for drinking?

Ted Rawlins - Superintendent of Schools, Troy

- The EIS correctly forecasts the capacity of the Troy school system to adequately accommodate the additional anticipated students as a result of the ASARCO Project.

Art Sheldon - Representative

- The EIS should have seriously considered the creation of a new village community at Little Joe to lessen the population impacts upon the other local communities.

2. Noxon ASARCO EIS meeting - July 25, 1978

Commentators

Pat Crowley - Big Arm, Montana resident

- The EIS should have discussed the current situation as regards the United States silver depletion.

Doug Ferrel - Trout Creek, Montana resident

- The EIS must be used in its entirety as a basis for the permit decisions and must justify the project in terms of "in the public interest."

Cesar Hernandez* - President, Northwest Citizens for Wilderness Mining

- The EIS should have identified the site of the concentrate smelter.
- The comment period provided for the EIS is inadequate.
- The EIS did not consider the failure of a tailing pond dam as recent as May, 1975, in Arizona when stating that the failure of modern tailing pond dams is virtually unknown in the Western States.
- The EIS should have discussed the impacts of a tailing pond dam failure.
- The EIS does not adequately consider the impacts of the entry of oil sealent from the road into the stream system when it rains heavily.
- The consideration of impacts to the Noxon and Heron areas is not adequate in the EIS.

- The EIS did not explore the likelihood of employee strikes and the resultant increase in welfare payments and poaching of wildife.

- The EIS did not consider the possibility of seepage from the tailing pond into the Bull River drainage.

- Why has the Water Quality Board set the standards for a tentative water discharge permit when the Environmental Protection Agency has not determined the safe levels of several of the elements and has until 1980 to do so?

- The EIS is incomplete because it does not contain the complete analysis of the impacts related to the proposed transmission line for the ASARCO Project. Separation of the EISs is piecemealing the public.

John Herring

- The EIS should have addressed the impacts upon Noxon and Heron more completely.

- The school enrollment data is outdated for the Noxn and Heron areas.

- The EIS needed a consideration of housing needs in the Noxon and Heron areas.

Sandra McDowel

- More time is needed to provide the public with additional opportunity to review the EIS.

- The EIS should have considered the possibility of providing a warning system for residents of the area should pollution levels become dangerous or the tailing pond dam break. How will the local residents know if ASARCO is polluting the area's water systems?

Dean Mercer

- The EIS should have placed a better emphasis on the need for local jobs and employment.

George Orhurst

- The EIS should have better examined the possibility of an increase in taxes for local residents if the project becomes a reality.

Jane Sullivan

- Additional time is needed for the public to review the EIS.

- The EIS is unclear as to how many and what types of revegetation attempts will occur as provided by the Hard Rock Law.

Beatrice Woessner*

- The EIS should have addressed the impact of increased carbon monoxide upon local residents and miners from additional traffic as a result of the project.

- The EIS did not adequately consider the effect of increased traffic upon the existing traffic levels.

- The EIS cannot be adequately reviewed if copies are only made available immediately prior to the public meetings.

Charley Lawrence

- The EIS should have considered the potential for additional development in the area as well as the ASARCO Project.

- The EIS should have contained a detailed disclosure of the sources of power for the ASARCO Project power needs.

- Additional time should have been allowed for the Grizzly Bear study.

- EIS should have considered the potential for increased poached wildlife because of strikes and also the need for increased enforcement.

3. Libby ASARCO EIS meeting - July 26, 1978

Commentators

Ann German - Attorney, Libby resident

- The EIS should have provided a better analysis of the existing juvenile delinquency problems, and the potential for increasing these problems if the project is approved.

Rick Johnson*

- The EIS needs to address the existing labor relations in the local area.

- The EIS points out the need for careful planning, but who has the responsibility for careful planning?

- The potential for additional mining projects in the Bull Lake area needs better consideration.

- The use of the word "Mitigation" in the wildlife sections of the EIS is unclear as to whether it means the protection from impacts, or the lessening of the potential for impacts.

- The EIS does not indicate the future use of the wildlife baseline monitoring data once the EIS process is completed.

Cesar Hernandez - President, Northwest Citizens for Wilderness Mining

- The EIS does not consider the cumulative effects of road salts, oils, and reagents upon the stream systems.

- The tailing pond monitoring wells should have had dye injected into them to determine the direction of seepage flow.

- The EIS does not consider the importance of Lake Creek water for drinking purposes by residents.

- The determination of the direction of tailing pond seepage is inadequate in the EIS.

- The EIS does not consider the possibility of the project resulting in a violation of the Class I airshed of the Cabinet Mountains Wilderness area.

- Why were only two days provided for the study of the vegetation impacts?

Charles Lawrence - Bull River area resident

- The EIS should have provided a cost analysis for the location of a smelter in the area.

- The location of the smelter for the ASARCO Project concentrates should have been stated in the EIS.

- The EIS did not consider the hunting pressure increase on other local areas as a result of the increased population associated with the ASARCO Project.

Bill Martin* - President, Cabinet Resource Group

- The EIS lacks an adequate discussion of the potential for the long-term stability of the tailing dam, especially the potential for and results of large earthquakes in the area.

- If the EIS is to be valuable, it must be used supplemental to the Hard Rock Act and have all of its considerations used in the permit decisions.

Barbara Rhodes* - Cabinet Resource Group

- The EIS does not contain an analysis of the effects of the milling reagents upon trout, but rather on bluegills which do not occur in Lake Creek.

McGregor Rhodes - Cabinet Resource Group

- The EIS does not contain a long-term analysis of the socio-economic impacts.

- The EIS should have considered the benefits of recycling existing supplies of copper and silver.

Brad Sheppard*

- The EIS should have contained a profile of the 100 year Lake Creek flood upon the tailing pond dam structure.

- The EIS should have contained a better discussion for the mitigation of high flow events on the tailing pond structure.

- An alternate route for the tailing slurry line should have been considered in the EIS.

- A survey of the local work force to determine who would want to work in the ASARCO mine should have been conducted.

- There is a need for additional hydrologic investigation to determine the risk for lowering the level of Spar Lake as a result of the withdrawal of fresh water from the wells associated with the project.

- The EIS should contain a better analysis for the potential of zinc and cadnium seepage into Lake Creek, and their potential impacts.

Don Waldron - Superintendent of Schools, Libby

- The EIS contains inaccuracies regarding the existing capacities of the Libby school system, as well as inaccurate student-to-teacher ratios.

V. CONSULTATION AND COORDINATION WITH OTHERS

A. Development of Statement

This environmental impact statement was prepared by a Federal-State task force unsder the coleadership of the Kootenai National Forest and the Montana Department of State Lands. Major inputs were provided by the following:

Federal Agencies

U.S. Forest Service - Kootenai National Forest

Bill O'Brien - Forester/ASARCO EIS Coordinator
Bill Rudiger - Wildlife Biologist
Hank Newhouse - Fisheries Biologist
Tim Tolle - Hydrologist
Larry Prinkii - Geologist
Lou Kuennon - Soil Scientist
Wayne Tlusky - Landscape Architect
Bob Wynecoop - Forester

U.S. Bureau of Mines - Spokane Field Office

Otto Schumacher - Mining Engineer
Burt Gosling - Geologist
Bill Karwoski - Mining Engineer
Ray Soderburg - Mining Engineer
Fred Williams - Mining Engineer

State Agencies

Montana Department of State Lands

Ralph Driear - ASARCO EIS Coordinator/Environmental Administrator
Steve Anderson - Mine Inspector/Hard Rock Bureau
Gerry Burke - Mine Inspector/Hard Rock Bureau

Montana Department of Health and Environmental Sciences - Water Quality Bureau

Loren Bahls - Water Quality Specilist
Mike Fillinger - Aquatic Biologist (Contract)
Bob Braico - Supervisor, Permit Section
Kevin Keenan - Enforcement Coordinator

- Air Quality Bureau

Jon Bolstad - Environmental Engineer

Montana Department of Fish and Game

Gayle Joslin - Fish and Wildlife Biologist/ ASARCO Troy Project
Bruce May - Fish and Wildlife Biologist/ District Biologist
Ken Knoche - Fish and wildlife Biologist/ District Biologist

Montana Department of Community Affairs - Planning and Research Div.

Tom Dufresne - Economist
Phil Brooks - Senior Economist
Dick Drapper - Administrator, Planning and Research Division

Montana Department of Natural Resources and Conservation - Energy Division

Bob Anderson - Administrator, Energy Division
Larry Thompson - Biological Sciences Coordinator
Ray Breuninger - Earth Sciences Coordinator
Larry Nordell - Cultural Sciences Coordinator

- Water Rights Bureau

Laurence Siroky - Chief, Water Rights Bureau
Bob Decker - Supervisor, Appropriations Section

Montana Department of Highways

Larry Ivanovich - Environmental Unit Manager

Private Consulting Agencies

Daily-Peccia and Associates

Clete Daily - Principle Planner
Bob Peccia - Principle Engineer

T.A.P. Inc.

Monte Elliason - Economist
Ginger Yost - Researcher

Western Technology and Engineering Inc.

Max Botz - Hydrogeologist/ Engineer
Jack Schmidt - Geomorphologist

Olson - Elliot and Associates

Steve Gilbert - Wildlife Biologist
Gerald Moore - Botanist

Additional participation and assistance were obtained from many sources. ASARCO Inc., provided data and information on their proposed activities, as well as numerous visual aids. Copies of the 115 Kilovolt transmission line application were supplied by Northern Lights Inc. Officials and employees of city and county governments in the Troy-Libby-Noxon area also provided data and assistance. Comments of residents of the area and others were especially helpful in the preparation of this document.

B. Review of Statement

In accordance with U.S. Council of Environmental Quality and Montana Department of State Lands rules and quidelines, copies of the draft statement were made available to the public for their comments and suggestions. Public meetings were held at Troy, Noxon, and Libby, Montana, on July 24, 25, and 26, 1978 respectively. Written comments received by the Supervisor, Kootenai National Forest, and the Commissioner, Montana Department of State Lands, are presented in Chapter IV, Volume III-final EIS. A summary of comments received at the public meetings are also contained in Chapter IV. Response to comments are contained in Chapter I, Volume III-final EIS.

APPENDICES

A Montana Department of Health and Environmental Sciences Tentative Montana Pollutant Discharge Elimination System Permit for the ASARCO Inc. Troy Project.

B Beneficial Water Use Permit Applications for the ASARCO Inc. Troy Project.

C U.S. Forest Service Record of Decision for the ASARCO Inc. Troy Project.

D 1977 Weather Data

E Additional Wildlife Data for the ASARCO Inc. Troy Project area.

F U.S. Fish and Wildlife Service Biological Opinion

G Draft EIS Wildlife text errata.

H Draft EIS Social - Economic text errata.

I U.S. Forest Service 1978 results of resurvey for Archeologic and Historic sites on the proposed ASARCO Inc. Troy Project area.

A

Montana Department of Health and Environmental Sciences Tentative Montana Pollutant Discharge Elimination System Permit for the ASARCO Inc. Troy Project.

MI
Permit No.: MT-0024538

MONTANA DEPARTMENT OF HEALTH
AND
ENVIRONMENTAL SCIENCES

AUTHORIZATION TO DISCHARGE UNDER THE MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Section 69-4801, et. seq., R.C.M. 1947, MAC 16-2.14(10)-S14460 and MAC 16-2.14(10)-S14480,

ASARCO, Incorporated
P.O. Box 440
Wallace, Idaho 83873

is authorized to discharge from its mine adit water settling sump located at NW¼, NW¼, Sec. 25, T. 29 N., R. 34 W., Lincoln County, Montana,

to receiving waters named Stanley Creek via an unnamed tributary,

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on the date of issuance.

This permit and the authorization to discharge shall expire at midnight, December 31, 1980.

TENTATIVE

FOR THE MONTANA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL SCIENCES

OCT 06 1978

D. G. Willems, P.E., Chief
Water Quality Bureau
Environmental Sciences Division

Dated this day of

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS - SEE ANY ADDITIONAL REQUIREMENTS UNDER PART III.

During the period beginning on the effective date of this permit and lasting through December 31, 1980, the permittee is authorized to discharge from outfall(s) serial number(s) 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Limitations

	Discharge		Concentration		Self-Monitoring Requirement	
	Kg/day (lbs/day)		mg/l	mg/l	Measurement	Sample
Parameter	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Frequency	Type
Flow-m^3/day (mgd)	---	---	---	---	Daily	Instantaneous
Specific Conductivity, umhos/cm^3	---	---	---	---	Daily	Grab
Nitrate & Nitrite (as N)	1/	2/	3/	4/	Monthly	Grab
Ammonia (as N)	1/	2/	3/	4/	Monthly	Grab
Total Kjeldahl Nitrogen (as N)	5.88 (12.96)	8.82 (19.45)	0.72	1.08	Monthly	Grab
Orthophosphate (as P)	0.10 (0.22)	0.15 (0.33)	0.012	0.018	Monthly	Grab
Total Phosphorus (as P)	0.18 (0.40)	0.27 (0.60)	0.022	0.033	Monthly	Grab
Total Suspended Solids	163.5 (360.5)	245.3 (540.8)	20	30	Weekly	Grab
Total Recoverable (TR) Aluminum	3.68 (8.11)	5.52 (12.17)	0.45	0.675	Monthly	Grab
TR Silver	0.20 (0.45)	0.31 (0.68)	0.025	0.038	Monthly	Grab
TR Manganese	0.33 (0.72)	0.49 (1.08)	0.04	0.06	Monthly	Grab
TR Cadmium	0.065 (0.144)	0.098 (0.216)	0.008	0.012	Monthly	Grab
TR Iron	1.55 (3.42)	2.29 (5.05)	0.19	0.28	Monthly	Grab
TR Copper	0.65 (1.44)	0.98 (2.17)	0.08	0.12	Monthly	Grab
TR Lead	0.98 (2.16)	1.47 (3.24)	0.12	0.18	Monthly	Grab
TR Zinc	0.37 (0.82)	0.56 (1.23)	0.045	0.068	Monthly	Grab
TR Mercury	0.011 (0.025)	0.017 (0.038)	0.0014	0.0021	Monthly	Grab

The concentration of oil and grease shall not exceed 20 mg/l in any grab sample and shall be monitored weekly by grab sampling.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored daily by grab sampling.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Sampling and analytical procedures for parameters expressed as "Total Recoverable" shall be determined jointly by the permittee and the Department for approval by the Department prior to permit issuance. Such sampling and analysis techniques shall become part of the permit at issuance.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s) at the point of discharge from the settling sump located at discharge 001 as described in the application.

1/ The daily average discharge limitation for the sum of Nitrate plus Nitrite plus Ammonia shall be 3.23 Kg/day (7.12 lbs/day) as N. The limitation shall be determined by the sum of the measured values for NO_3 + NO_2 (as N) and NH_3 (as N) times the maximum discharge flow as presented in the application (2.16 mgd).

2/ The daily maximum discharge limitation for the sum of Nitrate plus Nitrite plus Ammonia shall be 4.84 Kg/day (10.7 lbs/day) as N. The limitation shall be determined by the sum of the measured values for NO_3 + NO_2 (as N) and NH_3 (as N) times the maximum discharge flow as per permit application (2.16 mgd).

3/ The daily average concentration limitation for the sum of Nitrate plus Nitrite plus Ammonia shall be 0.395 mg/1 and shall be determined by the sum of the measured values for NO_3 + NO_2 (as N) and NH_3 (as N).

4/ The daily maximum concentration limitation for the sum of Nitrate plus Nitrite plus Ammonia shall be 0.592 mg/1 and shall be determined by the sum of the measured values for NO_3 + NO_2 (as N) and NH_3 (as N).

Please see additional Monitoring Requirements - Part III, Section 2 of this document.

C. MONITORING AND REPORTING REQUIREMENTS

1. *Representative Sampling*

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. *Reporting*

Monitoring results obtained during the previous one month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on the 28th day of the month following the effective date of this permit. Duplicate signed copies of these, and all other reports herein, shall be submitted to the Department and the Regional Administrator at the following addresses:

(a) Montana Department of Health
and Environmental Sciences
Water Quality Bureau
Capitol Station
Helena, Montana 59601

(b) Regional Administrator
U.S. Environmental Protection
Agency
1860 Lincoln Street
Denver, Colorado 80295

Attention: Permits Branch

Note: If no discharge occurs during the reporting period, "no discharge" shall be reported, in letter form, to the above agencies.

3. *Definitions*

(a) The "Act" means the Federal Water Pollution Control Act Amendments of 1972, PL 92-500.

(b) The "Administrator" means the administrator of the United States Environmental Protection Agency.

(c) A "composite" sample, for monitoring requirements, is defined as a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow.

(d) For compliance purposes, the "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

(e) For compliance purposes, the "daily maximum" discharge means the total discharge by weight during any calendar day. This limitation shall be determined by the analyses of a properly preserved composite sample composed of a minimum of four grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow at the time of sampling.

(f) For compliance purposes, the "daily average" concentration means the average concentration during a calendar month. Where less than daily sampling is required by this permit, the average concentration shall be determined by the summation of all measured daily samples divided by the number of days during the calendar month when the measurements were made.

(g) For compliance purposes, the "daily maximum" concentration shall be determined by the analysis of a properly preserved composite sample composed of a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow at the time of sampling.

(h) The "Department" means the Montana Department of Health and Environmental Sciences.

(i) The "EPA" means the United States Environmental Protection Agency.

(j) A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

(k) An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement using acceptable monitoring equipment.

(l) "Net" value, noted under Parameter, is calculated on the basis of the net increase of the individual parameter over the quantity of that same parameter present in the intake water measured prior to any contamination or use in the process of this facility. Any contaminants contained in any intake water obtained from underground wells shall not be adjusted for as described above and therefore shall be considered as process input to the final effluent. Limitations in which "net" is not noted are calculated on the basis of gross measurements, of each parameter in the discharge irrespective of the quantity or quality of those parameters in the intake waters.

(m) The "Regional Administrator" means the administrator of the region of EPA with jurisdiction over federal water pollution control activities in the state of Montana.

4. *Test Procedures*

Test procedures for the analysis of pollutants shall conform to regulations published in or subsequent revisions to the Federal Register, October 16, 1973, Vol. 38, Number 199, Part II. Sample collection and preservation shall be in accordance with the best methods technologically feasible, and shall be in a manner acceptable to the Department. (The EPA Region VIII Treatment and Preservation Guide should be consulted for acceptable sample collection and preservation techniques.)

All flow measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.

5. *Recording of Results*

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

(a) The exact place, date, and time of sampling;

(b) The dates the analyses were performed;

(c) The person(s) who performed the analyses;

(d) The analytical techniques or methods used; and

(e) The results of all required analyses.

6. *Additional Monitoring by Permittee*

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

7. *Records Retention*

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Department or the Regional Administrator.

A. MANAGEMENT REQUIREMENTS

1. *Change in Discharge*

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants must be reported by submission of a new MPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the Department of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. *Noncompliance Notification*

If, for any reason, the permittee does not comply with or will be unable to comply with any effluent limitation specified in this permit, the permittee shall provide the Department and the Regional Administrator with the following information, in writing, within five (5) days of becoming aware of such condition:

(a) A description of the discharge and cause of noncompliance; and

(b) The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. *Facilities Operation*

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

4. *Adverse Impact*

The permittee shall take all reasonable steps to minimize any adverse impact to state waters resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. *Bypassing*

Any diversion from or bypass of treatment or control facilities or systems necessary to maintain compliance with the terms and conditions of this permit is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit. The permittee shall promptly notify the Department and the Regional Administrator in writing of each such diversion or bypass.

If, for other reasons, a partial or complete bypass of the wastewater treatment facilities is considered necessary, a request for such bypass shall be submitted to the Department and to the Regional Administrator at least sixty (60) days prior to the proposed bypass. If the proposed bypass is judged acceptable by the Department and by the Regional Administrator, the bypass will be allowed subject to limitations imposed by the Department and the Regional Administrator.

If, after review and consideration, the proposed bypass is determined to be unacceptable by the Department and the Regional Administrator, or if limitations imposed on an approved bypass are violated, such bypass shall be considered a violation of this permit; and the fact that application was made, or that a partial bypass was approved, shall not be defense to any action brought thereunder.

6. *Removed Substances*

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering state waters.

7. *Power Failures*

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

(a) In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part I,

(b) Halt, reduce or otherwise control production and/or all discharges upon the reduction, loss of failure of the primary source of power to the wastewater control facilities.

B. RESPONSIBILITIES

1. *Right of Entry*

The permittee shall allow the head of the Department, the Regional Administrator, and/or their authorized representatives, upon the presentation of credentials:

(a) To enter upon the permittee's premises where an effluent source is located or in which any records are kept; and

(b) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any discharge of pollutants.

2. *Transfer of Ownership or Control*

In the event of any change in control or ownership from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Department and the Regional Administrator.

3. *Availability of Reports*

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 69-4823 (6), R.C.M. 1947.

4. *Permit Modification*

After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:

(a) Violation of any terms or conditions of this permit;

(b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or

(c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

5. *Toxic Pollutants*

Notwithstanding Part II, B-4 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition and the permittee so notified.

6. *Civil and Criminal Liability*

Except as provided in permit conditions on "Bypassing" (Part II, A-5) and "Power Failures" (Part II, A-7), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. *Oil and Hazardous Substance Liability*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

8. *Property Rights*

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

9. *Severability*

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

OTHER REQUIREMENTS PART III MI

1. *Reapplication*

If the permittee desires to continue to discharge beyond the expiration date of this permit, he shall reapply, in writing, to the Department at least 180 days prior to the expiration date of this permit.

2. *Additional Monitoring Requirements*

Instream Biological Monitoring

For the duration of the permit, the following monitoring shall be conducted by the permittee in the lower perennial segment of the Stanley Creek drainage at one station in Fairway Creek upstream of the confluence of Fairway Creek with upper Stanley Creek and one station in Stanley Creek downstream of the confluence of Fairway Creek with upper Stanley Creek:

A) In Situ Fish Bioassay
B) Algal Assay Bottle Test
C) Periphyton Chlorophyll/Biomass Accrual
D) Periphyton Community Structure
E) Macroinvertebrate Community Structure

This monitoring shall be conducted seasonally, a minimum of three (3) times per year. Precise dates, locations, and techniques shall be determined jointly by the permittee and the Department. Such dates, locations, and techniques shall be approved by the Department prior to this permit becoming effective and shall be included as part of the permit at issuance.

3. *Permit Modification*

This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2) (C), and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

(1) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

(2) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

B

Beneficial Water Use Permit Applications for the ASARCO Inc. Troy Project.

Application No.	Source	Point of Diversion	Purpose	Amount
18093	Stanley Creek, alluvial gravels	SE¼, S.26, T.29N.,R.34W.,	Potable water supply	50 gpm not to exceed 80 af/y for 20 years
18094	Two wells, Stanley Creek Drainage	NE¼,S.26, T.29N.,R.34W.,	Processed water	1600 gpm not to exceed 2500 af/y for 20 years
18095	Subterranean flow from mine adit	SE¼, S.26, T.29N.,R.34W.,	Processed water	1000 gpm not to exceed 1500 af/y for 20 years
19319	Stanley Creek	SE¼, S.26, T.29N.,R.34W.	Drilling & testing	20 gpm not to exceed 2 af/y for 6 months ending Jan.1'79
19346	Ross Creek	NE¼, S.7, T.28N.,R.33W.,	Drilling & Testing	3 gpm not to exceed .2 af for six weeks ending Sept. 1, 1978

Processing of these applications is pending field investigations and public noticing requirements to insure compliance with the criteria for permit issuance under the Montana Water Use Act.

C

U.S. Forest Service Record of Decision for the ASARCO Inc. Troy Project.

NOTE: The Record of Decision is included as an enclosure in the front portion of the EIS because of time constraints in printing the final EIS.

D

1977 Weather Data

Drought Frequency and Duration

A frequency analysis of annual and monthly precipitation would be more thorough than just dealing with mean values. However, on-site data are lacking. An extrapolation of average point data (Troy Ranger Station) to the drainage area above Lake Creek is dangerous enough without extrapolated frequency distirbutions of precipitation into runoff frequency distributions.

In short, although numbers are present, qualitative statements are really the best one can do, and remain confident of the validity of those statements. Evaluation of runoff is best accomplished by a regression model designed specifically for that purpose. Experience shows that precipation - runoff models including in-put, out-put water balance approach, are weak and only indicate general trends. To expect a more powerful tool at this time is to expect too much.

Weakness in the data include a) missing records (which were estimated) b) 17 years of record, c) extrapolation from a point outside the area to an area, d) measuring error.

In addition, (Tolle, 1978) has demonstrated that frequency distribution of peak flows varied inversely with the mean annual precipitation of the drainage basins. This suggests that runoff in general is more variable in drier precipitation regimes, something supported by weather and river records worldwide. What this means with regard to the Troy Project is that both precipitation and runoff vary less in the Lake Creek area than in most mining areas of Montana, Wyoming, and Idaho, because the totals are greater to begin with on the average.

Drought Statistics Based on Troy Ranger Station 17 Years with Estimated Months

10 year drought	21.31 inches of rainfall
20 year drought	20.22 inches of rainfall
40 year drought	19.30 inches of rainfall
100 year drought	18.22 inches of rainfall
200 year drought	17.48 inches of rainfall
2000 year drought	15.37 inches of rainfall

note: Calculations indicate runoff associated with these drought figures would be two-thirds of the precipitation totals expressed in cu/ft/sec. Calculations are available for review at the Kootenai National Forest Supervisors Office, Libby, Montana.

Rainfall by Month for Troy, Montana
1977

Month	Inches	Average Temperature (F)
January	1.83	22.8
February	missing	30.7
March	2.80	36.1
April	.62	44.0
May	2.50	49.3
June	2.34	60.3
July	1.54	62.5
August	2.92	64.4
September	3.16	52.7
October	2.37	43.2
November	6.40	29.2
December	1.45	20.3

E

Additional Wildlife Data for the ASARCO Inc. Troy Project area.

Addendum to Appendix O-1 Bird species observed according to month on the ASARCO copper-silver mine study area from April 1978 through July 1978.

COMMON NAME	SCIENTIFIC NAME	APRIL	MAY	JUNE	JULY
Red-necked grebe	*Podiceps grisegena*	x			
Horned grebe	*Podiceps auritus*	x			
Great blue heron	*Ardea herodias*	x	x	x	x
Mallard	*Anas platyrhynchos*	x	x		
Common goldeneye	*Bucephala clangula*	x	x		
Common merganser	*Mergus merganser*	x			
Sharp-shinned hawk	*Accipiter straiatus*		x		
Osprey	*Pandion haliaetus*	x	x	x	x
American kestrel	*Falco sparverius*		x		
Blue grouse	*Dendragopus obscurus*		x		
Ruffed grouse	*Bonasa umbellus*	x	x		
Belted kingfisher	*Megaceryle alcyon*		x		
Common flicker	*Colaptes auritus*		x		
Pileated woodpecker	*Dryocopus pileatus*	x			
Yellow-bellied sapsucker	*Sphyrapicus varius*	x			
Olive-sided flycatcher	*Nuttallornis borealis*		x	x	
Tree swallow	*Iridoprocne bicolor*		x		
Rough-winged swallow	*Stelgidopteryx ruficollis*		x		
Barn swallow	*Hirundo rustica*		x		
Gray jay	*Perisoreus canadensis*		x		
Common raven	*Corvus corax*		x		
Common crow	*Corvus brachyrhynchos*		x		
Black-capped chickadee	*Parus atricapillus*		x		
Mountain chickadee	*Parus gambeli*		x		
Winter wren	*Troglodytes troglodytes*		x		

COMMON NAME	SCIENTIFIC NAME	APRIL	MAY	JUNE	JULY
American robin	*Turdis migratorius*		x		
Varied thrush	*Ixoreus naevius*		x		
Yellow-rumped warbler	*Dendroica petechia*		x		
Townsend's warbler	*Dendroica townsendi*			x	
Brewer's blackbird	*Euphaga cyanocephalus*		x		
Pine siskin	*Spinus pinus*		x		
Dark-eyed junco	*Junco hyemalis*		x		
Song sparrow	*Melospiza melodia*	x			

Table Osprey nests located on the ASARCO copper-silver mine study area during 1977-1978 including first observation dates, site description and comments.

NEST NO.	DATE LOCATED	SITE DESCRIPTION	COMMENTS
1	5-08-77	East shore of Bull Lake along Highway 202. Top of partially dead larch (*Larix occidentalus*) tree.	Productive nest - two young fledged first week of August, 1977. Productive nest attended by pair throughout July, 1978. Not observed from air during 1978.
2	6-16-77	Crowell Creek. Tree standing in creek bed. Top of topped Douglas-fir (*Pseudotsuga menziesii*). Within 0.4 km of Bull Lake.	Nest failure - young abandoned in early July, 1977, conincident with initiation of logging activity beneath nest. Nest failure - pair observed in April, single adult seen in July, no young in nest in late July, 1978.
3	6-15-77	Freeman Ridge, across from Felix Creek. Top of giant snag. Within 0.4 km of Lake Creek.	Productive nest - two young fledged first week of August, 1977. Productive nest - three young in nest in July, 1978.
4	6-19-77	Swanson Creek. Top larch snag. Next to swamp, 0.8 km from Lake Creek.	Unoccupied nest, may have had osprey pair earlier in spring, 1977. Pair is reported to have been shot off nest. Nest blown out of tree, 1978.
5	7-14-77	Noggle Creek. Top of larch snag. Near ponds, about 1.5 km from Bull Lake.	Unoccupied nest during 1977 and 1978.
6	7-14-77	West shore of Bull Lake near Emma Gulch. In dead larch snag.	Unoccupied nest, 1977. Productive nest - two young in nest in July, 1978.
7	4-9-77	East shore of Bull Lake near Crowell Creek. In broken spruce (*Picea* sp.) snag.	Unoccupied nest, 1977. Tree fallen, 1978.
8	5-16-77	Middle Fork Ross Creek. Top of dead unidentified tree.	Unoccupied nest, 1977. Observed from the air. No osprey were observed from the ground in this area. Not observed in 1978.
9	3-12-78	Northwest of Schoolhouse Lake. Top of dead larch snag.	Fate of this nest unknown during 1977. Productive nest - three young in nest in July, 1978.

Addendum to Table II-37. Elk, mule deer, white-tailed deer and moose sex and age classification according to month on the ASARCO copper-silver mine study area from April 1978 through July 1978.

SPECIES	CLASSIFICATION	APRIL	MAY	JUNE	JULY	SUB[1] TOTAL	GRAND[2] TOTAL
Elk	Males	1	-	-	-	1/04	51/26
	Females	-	-	-	-	0/0	58/30
	Unclassified	8	-	-	5	13/52	38/19
	Unclassified Adults	-	4	-	7	11/44	24/12
	Calves	-	-	-	-	0/0	24/12
	Total [3]	9/36	4/16	0/0	12/48	25/100	195/100
Mule Deer	Males	-	-	1	6	7/54	29/31
	Females	-	2	-	4	6/46	55/59
	Unclassified	-	-	-	-	0/0	5/5
	Fawns	-	-	-	-	0/0	5/5
	Total	0/0	2/15	1/8	10/77	13/100	94/100
White-Tailed Deer	Males	5	-	-	-	5/21	19/16
	Females	3	3	-	2	8/33	61/51
	Unclassified	5	5	-	-	10/42	33/28
	Fawns	1	-	-	-	1/4	6/5
	Total	14/58	8/34	0/0	2/8	24/100	119/100
Moose	Males	-	-	-	-	0/0	3/20
	Females	-	1	-	-	1/100	2/13
	Unclassified Adults	-	-	-	-	0/0	9/60
	Calves	-	-	-	-	0/0	1/7
	Total	0/0	1/100	0/0	0/0	1/100	15/100

[1] Number observed by classification/percent of April 1978-July 1978 observations by species.

[2] Number observed by classification/percent of April 1977-July 1978 observations by species.

[3] Number observed by month/percent of total April-July 1978 observations by month.

Addendum to Table II-38. Elk, mule deer, white-tailed deer and moose observed according to habitat type and season on the ASARCO copper-silver mine study area from April 1978 through July 1978.

	ELK			MULE DEER			WHITE-TAILED DEER			MOOSE		
HABITAT TYPE[1/]	SPR[2/]	SUM[3/]	TOT%[4/]	SPR	SUM	TOT%	SPR	SUM	TOT%	SPR	SUM	TOT%
TSHE-THPL												
TSHE/CLUN	15.4	-	2/8.0	33.3	-	1/7.7	22.7	100.0	7/29.2	100.0	-	1/100.0
THPL/CLUN	-	-	0/0	-	-	0/0	36.4	-	8/33.3	-	-	0/0
	-	-	0/0	-	-	0/0	-	-	0/0	-	-	0/0
ABLA SERIES												
ABLA/CLUN	-	58.3	7/28.0	33.3	-	1/7.7	-	-	0/0	-	-	0/0
ABLA/MEFE	-	8.3	1/4.0	-	60.0	6/46.1	-	-	0/0	-	-	0/0
ABLA/XETE	-	16.6	2/8.0	-	40.0	4/30.8	-	-	0/0	-	-	0/0
ABLA/LUHI	-	16.6	2/8.0	-	-	0/0						
PSME SERIES												
PSME/ARUV	-	-	0/0	-	-	0/0	40.9	-	9/37.5	-	-	0/0
PSME/PHMA	84.6	-	11/44.0	-	-	0/0	-	-	0/0	-	-	0/0
PSME/VAGL	-	-	0/0	33.3	-	1/7.7	-	-	0/0	-	-	0/0
TOTAL[5/]	13/32	12/129	25/195	3/48	10/42	13/94	22/83	2/14	24/119	1/3	0/0	1/15

1/ See Table II-9 for full scientific and common names of habitat types (see revised version of Table II-9 in Volume III).

2/ Spring includes April, May and June. Data given in percent.

3/ Summer includes July, August and September. July was last month during 1978 in which data was collected.

4/ Total number of observations in each habitat type/percent of observations from April 1978 through July 1978.

5/ Total of observations made during each season in 1978/total of observations made from April 1977 through July 1978.

Addendum to Table II-39. Elk, mule deer, white-tailed deer and moose observed according to elevation and season on the ASARCO copper-silver mine study area from April 1978 through July 1978.

	ELK			MULE DEER			WHITE-TAILED DEER			MOOSE		
ELEVATION[1/]	SPR[2/]	SUM[3/]	TOT%[4/]	SPR	SUM	TOT%	SPR	SUM	TOT%	SPR	SUM	TOT%
610-760	-	-	0/0	-	-	0/0	77.3	-	17/70.8	100.0	-	1/100.0
761-910	-	-	0/0	-	-	0/0	9.1	100.0	4/16.7	-	-	0/0
911-1060	-	-	0/0	-	-	0/0	13.6	-	3/12.5	-	-	0/0
1061-1220	100.0	-	13/52.0	-	-	0/0	-	-	0/0	-	-	0/0
1221-1370	-	-	0/0	33.3	-	1/7.7	-	-	0/0	-	-	0/0
1371-1520	-	-	0/0	33.3	-	1/7.7	-	-	0/0	-	-	0/0
1521-1680	-	58.3	7/28.0	33.3	50.0	6/46.1	-	-	0/0	-	-	0/0
1681-1830	-	25.0	3/12.0	-	10.0	1/7.7	-	-	0/0	-	-	0/0
1831-1980	-	16.6	2/8.0	-	40.0	4/30.8	-	-	0/0	-	-	0/0
TOTAL[5/]	13/32	12/129	25/195	3/48	10/42	13/94	22/83	2/14	24/119	1/3	0/0	1/15

1/ Elevation in meters. Intervals span approximately 150 to 160 m. 610m = 2000 ft. and 1980m = 6500 ft.

2/ Spring includes April, May and June. Data given in percent.

3/ Summer includes July, August and September. July was last month in 1978 during which data was collected.

4/ Total number of observations made at each elevation interval/percent of observations from April 1978 through July 1978.

5/ Total of observations made during each season in 1978/total of observations made from April 1977 through July 1978.

Addendum to Table II-40. Elk, mule deer, white-tailed deer and moose observed according to aspect and season on the ASARCO copper-silver mine study area from April 1978 through July 1978.

	ELK			MULE DEER			WHITE-TAILED DEER			MOOSE		
ASPECT	SPR[1]	SUM[2]	TOT%[3]	SPR	SUM	TOT%	SPR	SUM	TOT%	SPR	SUM	TOT%
N	-	-	0/0	-	20.0	2/15.4	9.1	-	2/8.3	-	-	0/0
NE	-	25.0	3/12.0	33.3	-	1/7.7	-	-	0/0	-	-	0/0
E	-	41.7	5/20.0	-	10.0	1/7.7	9.1	-	2/8.3	-	-	0/0
SE	84.6	-	11/44.0	33.3	10.0	2/15.4	-	100.0	2/8.3	-	-	0/0
S	-	33.3	4/16.0	33.3	-	1/7.7	22.7	-	5/20.8	-	-	0/0
SW	15.3	-	2/8.0	-	30.0	3/23.0	13.6	-	3/12.5	100.0	-	1/100.0
W	-	-	0/0	-	30.0	3/23.0	-	-	0/0	-	-	0/0
NW	-	-	0/0	-	-	0/0	-	-	0/0	-	-	0/0
Flat	-	-	0/0	-	-	0/0	45.5	-	10/41.7	-	-	0/0
TOTAL[4]	13/32	12/129	25/195	3/48	10/42	13/94	22/83	2/14	24/119	1/3	0/0	1/15

[1] Spring includes April, May and June. Data given in percent.

[2] Summer includes July, August and September. July was last month in 1978 during which data was collected.

[3] Total number of observations made at each aspect/percent of observations from April 1978 through July 1978.

[4] Total observations made during each season in 1978/total of observations made from April 1977 through July 1978.

Addendum to Table II-41. Elk, mule deer, white-tailed deer and moose observed according to topography, configuration and season on the ASARCO copper-silver mine study area from April 1978 through July 1978.

	ELK			MULE DEER			WHITE-TAILED DEER			MOOSE		
TOPOGRAPHY	SPR[1/]	SUM[2/]	TOT%[3/]	SPR	SUM	TOT%	SPR	SUM	TOT%	SPR	SUM	TOT%
Ridge	-	16.7	2/8.0	-	-	0/0	-	-	0/0	-	-	0/0
Upper Slope		16.7	2/8.0	33.3	70.0	8/61.5	18.1	-	4/16.7	-	-	0/0
Mid Slope	100.0	16.7	15/60.0	66.7	30.0	5/38.5	-	-	0/0	-	-	0/0
Lower Slope	-	-	0/0	-	-	0/0	22.7	-	5/20.8	-	-	0/0
Bench/Flat	-	25.0	3/12.0	-	-	0/0	59.1	-	13/54.2	-	-	0/0
Creek Bottom		25.0	3/12.0	-	-	0/0	-	100.0	2/8.3	100.0	-	1/100.0
TOTAL[4/]	13/32	12/129	25/195	3/48	10/42	13/94	22/83	2/14	24/119	1/3	0/0	1/15
CONFIGURATION												
Convex	-	-	0/0	-	-	0/0	-	-	0/0	-	-	0/0
Straight	30.8	33.3	8/32.0	33.3	70.0	8/61.5	68.2	-	15/62.5	-	-	0/0
Concave	69.2	8.3	10/40.0	-	-	0/0	4.5	100.0	3/12.5	100.0	-	1/100.0
Undulating	-	58.3	7/28.0	66.7	30.0	5/38.5	27.3	-	6/25.0	-	-	0/0
TOTAL	13/32	12/129	25/195	3/48	10/42	13/94	22/83	2/14	24/119	1/3	0/0	1/15

1/ Spring includes April, May and June. Data given in percent.

2/ Summer includes July, August and September. July was last month in 1978 data was collected.

3/ Total number of observations made in each category/percent of observations from April 1978 through July 1978.

4/ Total observations made in each topography or configuration category in 1978/total of observations made from April 1977 through July 1978.

Addendum to Table II-42. Elk, mule deer, white-tailed deer and moose observed according to distance from cover, the nearest road and season on the ASARCO copper-silver mine study area from April 1978 through July 1978.

DISTANCE TO COVER IN METERS	ELK			MULE DEER			WHITE-TAILED DEER			MOOSE		
	SPR[1/]	SUM[2/]	TOT%[3/]	SPR	SUM	TOT%	SPR	SUM	TOT%	SPR	SUM	TOT%
0-10	-	75.0	9/36.0	66.7	90.0	11/84.6	81.8	-	18/	100.0	-	1/100.0
10-50	100.0	16.7	15/60.0	-	-	0/0	4.5	100.0	3/	-	-	0/0
50-100	-	8.3	1/4.0	-	-	0/0	13.6	-	3/	-	-	0/0
100-200	-	-	0/0	-	-	0/0	-	-	0/0	-	-	0/0
over 200	-	-	0/0	33.3	10.0	2/15.4	-	-	0/0	-	-	0/0
TOTAL[4/]	13/32	12/129	25/195	3/48	10/42	13/94	22/	2/	24/	1/3	0/0	1/15
DISTANCE FROM ROAD IN METERS												
0-10	30.8	-	4/16.0	66.7	20.0	4/30.8	63.6	-	14/58.3	-	-	0/0
10-50	-	-	0/0	-	-	0/0	27.2	-	6/25.0	-	-	0/0
50-100	-	-	0/0	-	-	0/0	-	-	0/0	-	-	0/0
100-200	-	-	0/0	-	-	0/0	9.1	-	2/8.3	-	-	0/0
over 200	69.2	100.0	21/84.0	33.3	80.0	9/69.2	-	100.0	2/83	100.0	-	1/100.0
TOTAL	13/32	12/129	25/195	3/48	10/42	13/94	22/	2/	24/	1/3	0/0	1/15

[1/] Spring includes April, May, June. Data given in percent

[2/] Summer includes July, August and September. July was last month in 1978 data was collected.

[3/] Total number of observations made in each category/percent of observations from April 1978 through July 1978.

[4/] Total observations made in each distance category in 1978/total of observations made from April 1977 through July 1978.

Addendum to Table II-43. Mountain goat sex and age classification and average group size according to month on the ASARCO copper-silver mine study area from April 1978 through July 1978.

MONTH	AVERAGE GROUP SIZE	UNCLASSIFIED ADULTS	UNCLASSIFIED GOATS	MALES	FEMALES	JUVENILE	KID	TOTAL
April	7(1)[1]	2	-	-	2	-	3	7
May	3.3(6)	14	3	-	4	-	4	25
June	4.5(2)	9	-	-	-	1	2	12
July	2.0(2)	5	-	1	2	-	1	9
TOTAL[2]	3.6(11)/4.4(53)	30/130	3/29	1/13	8/45	1/14	10/48	53/279

[1] Average group size (number of groups - singles not included).

[2] April through July 1978 data/April 1977 through July 1978 data.

Addendum to Table II-44. Percent of monthly mountain goat observations made on eight aspects on the ASARCO copper-silver mine study area from April 1978 through July 1978.

		N	NE	E	SE	S	SW	W	NW
April	7/12.5[1/]			100.0					
May	25/25.0		8.0	92.0					
June	12/37.5			58.3	33.3			8.3	
July	9/37.5					11.1		22.2	66.7

[1/] Total number of goats observed/percent of the aspect spectrum on which goats were observed during the month.

Addendum to Table II-45. Elevations at which mountain goats were observed on the ASARCO copper-silver mine study area from April 1978 thorugh July 1978.

	MEAN1/	MODE2/
April	1402(4600)3/	1402(4600)
May	1330(4350)	1280(4200)
June	1265(4150)	1341(4400)
July	1750(5744)	1829(6000)

1/ Sum of all elevations at which goats were observed divided by number of goats observed.

2/ Elevation at which goats were most commonly observed.

3/ Given in meters (feet).

Addendum to Appendix O-3. Ruffed grouse drumming routes conducted on the ASARCO copper-silver mine study area during spring 1977 and 1978.

			KEELER CREEK ROUTE [1/] STOP NUMBER[2/]															
DATE	TIME START (a.m.)	TIME FINISH (a.m.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL	AVG. NO. DRUMS/STOP
4/10/77	5:30	7:42	1[3/]	2	0	0	0	0	0	0	1	0	0	0	1	1	0	6	0.4
4/12/77	5:50	7:02	0	1	1	0	0	0	0	2	0	2	0	0	0	0	0	6	0.4
4/21/77	5:30	7:43	2	1	2	2	2	3	2	2	3	1	3	1	2	1	0	27	1.8
4/25/77	5:45	7:30	3	7	2	3	3	3	2	0	4	6	4	1	0	1	0	39	2.6
4/25/78	5:26	6:38	2	0	2	0	3	1	2	0	4	5	2	1	3	1	1	27	1.8
5/1/77	5:50	7:15	3	0	3	1	3	3	1	1	2	0	2	0	0	1	0	20	1.3
5/6/77	6:02	7:20	2	3	4	4	4	2	1	3	3	1	4	1	1	1	3	37	2.5
5/13/77	6:15	7:30	1	2	5	2	3	2	1	0	3	0	4	1	1	0	0	25	1.7
5/25/77	5:35	6:50	2	3	5	2	1	1	2	2	3	1	2	1	1	1	0	27	1.8
5/2/78	5:30	7:44	3	0	3	2	0	5	7	4	4	3	0	2	2	0	0	35	2.3

			STANLEY CREEK ROUTE[4/] STOP NUMBER															
DATE	TIME START (a.m.)	TIME FINISH (a.m.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL	AVG. NO. DRUMS/STOP
4/11/77	5:30	6:42	0[3/]	0	0	0	1	0	1	0	1	0	0	0	0	0	0	3	0.2
4/13/77	5:46	6:58	0	0	0	0	0	1	0	0	1	2	2	0	0	0	0	6	0.4
4/18/77	5:32	6:50	2	2	0	0	2	0	0	2	0	1	0	1	0	0	1	11	0.7
4/24/77	5:40	7:00	2	1	2	2	2	0	0	0	0	0	0	2	0	0	0	11	0.7
4/26/78	5:02	6:16	1	2	2	0	3	0	1	1	0	0	0	2	2	3	4	21	1.4
4/30/77	6:03	7:20	2	3	3	0	3	0	0	0	0	2	1	1	0	0	0	15	1.0
5/1/78	5:43	7:02	4	4	7	5	1	2	0	1	0	3	0	1	0	1	0	29	1.9
5/8/77	5:52	7:03	1	4	4	4	7	0	1	1	2	0	1	0	1	0	1	27	1.8
5/14/77	6:08	7:15	1	3	2	2	2	0	0	0	0	0	0	0	0	0	0	10	0.7
6/3/77	5:40	6:50	2	0	1	1	2	0	0	0	1	1	0	0	1	0	0	9	0.6

Ruffed grouse drumming routes (continued)

DATE	TIME START (a.m.)	TIME FINISH (a.m.)	UPPER STANLEY CREEK ROUTE[5/] STOP NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL	AVG. NO. DRUMS/STOP
4/27/78	5:10	6:35	2	2	2	0	2	2	0	1	0	0	0	1	0	0	0	10	0.66

DATE	TIME START (a.m.)	TIME FINISH (a.m.)	ROSS CREEK ROUTE[6/] STOP NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL	AVG. NO. DRUMS/STOP
4/30/78	6:00	7:15	3	5	0	0	4	5	4	0	2	0	0	1	2	3	0	29	1.9

[1/] Route started 3.25 miles (5.5km) up N. Fk. Keeler Creek from junction of roads 404 and 473 and was run down the drainage and onto the road which skirts Lime Butte for 3.75 miles (6km).

[2/] Stops were made at one quarter mile intervals.

[3/] Number of drums heard during the 4 minute stop.

[4/] Route started 1.1 miles (1.77km) south of Stanley Creek bridge (S13, T29N, R34W) and was run down the drainage then up to the Spar Lake road then down that road for a total of 3.75 miles (6.0km).

[5/] Route started 0.5 miles (0.8km) below junction of Spar Lake road and Stanley Creek road, NW¼ S14 T29N R34W. Route turned down the Stanley Creek road and continued to the washed-out bridge site on Lake Creek, NE¼ S7 T29N R33W.

[6/] Route started 3.75 miles (5.5km) up the Ross Creek campground road, NW¼ S7 T28N R33W and was conducted downstream to Highway 202.

Addendum to Appendix O-2. Bird species observed according to cover type and habitat type on the ASARCO copper-silver mine study area from April 1978 through July 1978.

	COVER TYPES						HABITAT TYPES[1/]																					
COMMON NAME	WATER	SHORE	SHRUBS	CUTTING UNITS	OPEN AREAS[2/]	FOREST	THUJA-TSUEA[3/] SERIES	THPL/OPHO	THPL/CLUN	TSHE/CLUN	ABIES GRANDIS SERIES	ABGR/CLUN	ABIES LASIOCARPA SERIES	ABLA/CLUN	ABLA/MEFE	ABLA/CACA	TSME/XETE	ABLA/XETE	ABLA/LUHI	PSEUDOTSUEA MENZIESII SERIES	PSME/PHMA	PSME/LIBO	PSME/VAGL	PSME/SYAL	PSME/CARU	PSME/AGSP	PINUS CONTORTA COM.	PICO/VACA
Great blue heron								x		x																		
Sharp-shinned hawk									x	x																		
American kestrel										x																		
Belted kingfisher																				x								
Yellow-bellied sapsucker								x																				
Olive-sided flycatcher														x														
Tree swallow	x																											
Rough-winged swallow	x																											
Barn swallow	x																											
Gray jay														x														
Mountain chickadee															x													
Varied thrush															x													
Yellow-rumped warbler														x														
Townsend's warbler						x		x																				

[1/] Habitat types according to Pfister et al (1977). The names of the habitat series precedes each set of habitat types. Habitat type names are presented as standard abbreviations and are given in Table II-9.

[2/] Open areas include pastures, cropland and natural openings (including meadows, parks, talus and burns).

[3/] Observation recorded by series if exact habitat type could not be determined or if species was universally distributed throughout series.

F

U.S. Fish and Wildlife Service Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center
Denver, Colorado 80225

STREET LOCATION:
10597 West Sixth Avenue
Lakewood, Colorado
Across From Federal Center

IN REPLY REFER TO:
FA/SE/Coop. FED--FS--
Troy Mining Project

F.S.
[illegible]
MAY 30 1978
[illegible]
ES ERS
RO
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RECEIVED
KOOTENAI
JUN 5 1978

MAY 22 1978

Mr. Robert H. Torheim
Regional Forester
U.S. Forest Service
Region 1
Federal Building
Missoula, MO 59801

Dear Mr. Torheim:

This is our official response to your request of March 2, 1978, for formal consultation regarding the grizzly bear and the proposed Troy Mining Project on the north slope of Mt. Vernon. We have conducted a threshold examination as prescribed in the Interagency Cooperation Regulations of January 4, 1978.

It is our biological opinion that the proposed ASARCO mine would not be likely to jeopardize the continued existence of the grizzly bear, or destroy or adversely modify its habitat, if ASARCO implements specific restrictions and precautions as discussed below. This opinion is based on the following considerations:

In a study of the Mt. Vernon area done for Kootenai National Forest, Olson-Elliot and Associates identified and mapped a core area of high quality grizzly bear habitat and an outer area of lesser quality habitat. In spite of the high quality of the core habitat, no sightings or evidence of grizzlies were observed there. The only good evidence of grizzly activity was a den believed to have been excavated by a grizzly on the Middle Fork of Ross Creek, outside the intensive study area. Bear expert A.W. Erickson was also unable to locate any records of grizzly sightings or kills in the Mt. Vernon area, and believes that it has never been highly used by grizzlies.

Thus, the Mt. Vernon area appears to receive little present use by grizzlies, although the core habitat area has great potential for future grizzly use. Because the mine site is located on the northern periphery of the core, the project would have no adverse impact on bears or areas presently important to them.

FS ~~[illegible]~~
DRS
ASB
A-R
B-F
C-S
F-P
O-S
P-M
R-S
CO
ESB
C-M
S-P
R-I
S-D
P-C
PB
A-B
[illegible]-S
[illegible]-C
T-A
[illegible]

CONSERVE
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ENERGY

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Kootenai National Forest biologist W.C. Ruediger is not aware of any sightings or use by grizzlies in the Lake Creek drainage. Thus the tailings pond, slurry pipeline, and improvement of the access road would not result in direct conflict with the grizzly bear. This area has already been opened up and affected by Highway 202 and the present roads into Spar Lake and Mt. Vernon.

However, we do have concerns about the effects of increased human access on the potential of the habitat for future grizzly bear use. The Kootenai National Forest has determined that a small population of grizzlies inhabits the West Cabinet Mountains to the south and west of Mt. Vernon. If this population expands, a desirable management goal, increased grizzly use of the high quality core habitat identified near the proposed mine site would very likely occur. ASARCO and the Forest Service should take precautions to ensure that mining and other human activities associated with increased access are designed to avoid attracting grizzlies out of the core habitat into the project area. To eliminate potential indirect impacts from the mining project and associated human use of the area we make the following recommendations:

1. Access to Mt. Vernon should be restricted to the north side using the present road system as proposed. Access from the south (Ross Creek side) would cross core habitat and should be prohibited.

2. Improvement of the access road will attract and increase human use of the area. The Forest Service and ASARCO should develop a road system management plan to restrict non-essential use and minimize human access to the core habitat and surrounding area.

3. ASARCO should develop an education program and appropriate firearms policies for company employees to prevent grizzly mortality from illegal killing or over-reactive self-protection measures.

4. Garbage storage and collection systems should be designed to be unattractive to bears.

5. Grizzly bear experts should be consulted prior to revegetation of disturbed sites and road grades. Proper plant species should be selected to avoid attracting bears into the area.

6. ASARCO should give consideration to a bus to transport employees from a parking area at the tailings pond into the plant site. This would minimize the potential for adverse bear-man conflicts along the access road, as well as conserving energy and reducing maintenance costs for the road.

This completes the formal consultation process for the proposed Troy Mining Project. However, if you would like further discussions about these recommendations or assistance in implementing them, please contact our Area Manager in Billings.

We appreciate your interest and cooperation in meeting our joint consultation responsibilities.

Sincerely yours,

Acting Regional Director

cc: Burt Rounds, Area Manager
U.S. Fish and Wildlife Service
Federal Building, Room 3035
316 N. 216th Street
Billings, Montana 59101

TERRESTRIAL WILDLIFE TEXT
ERRATA SHEET

Page	para	line	
viii			(~~d~~) (iv) Moose (~~iv~~) (v) Big horn sheep (~~v~~) (vi) Mountain Goat (~~e~~) (d) Endangered ~~or~~ and Threatened Species
xvii			Table II-35 page ~~182~~ 186
124			Table II-9 /Abbreviations are not up to date. Correct abbreviations are presented in Pfister et al. 1977. PP/CARU (incorrect abbrev.) is no longer a habitat type. DF/XETE is not a habitat type, it is a phase of the PSME/VAGL (correct abbrev.) habitat type. PSME/VAGL, PICO/VACA, ABLA/CACA habitat types are missing./
165	2	8	... 425 ~~km^2~~ square km (165 ~~mi^2~~ square miles)
		10	. . . Dry Creek to the south (Figure ~~I-18~~ II-5)
168	1	1	. . . three of the ~~nine~~ twelve species . . . .
		9	. . . . deserted the incubating hens . . .
171	1	9&10	. . . and the ~~one~~ two observed during this study ~~was~~ were ~~a~~ road kills found . . . .
	4	1	Tetra~~n~~onidae
172			Table II-30 /Disregard this table, see Table II-30, Appendix E, Volume III/
178	3	9	Power (1966) notes that for bluebirds "Highly . . .
183			Figure II-7. /W on Bull Lake should be circled. In the key, M should be replaced by W for mustelid./
185	6	6-10	/Replace with the following:/ Bears are usually found in cool moist habitats later in the summer (Tisch 1961). If bears were using limited, shady, moist microsites, they would have been particularly difficult to observe during this period, and the summer of 1977 was unusually warm and dry.

191	3	7	. . . white-tailed deer (*Odocoileus virginianus*) and . . .
	5	2	. . . bobcat (*Lynx rufus*) or lynx . . .
193	4	8	. . . ~~on~~ an interspecific. . .
200	1	4	. . . 170 elk observations were made ~~observed~~ on the . . .
	2	8	. . . noted ~~in~~ along Stanley Creek . . .
	5	3-7	[Omit:] Over 80 percent of the elk . . . October. Observability . . . (Joslin 1975). [Insert:] Over 80 percent of the elk were observed during August, September and October at high elevations in relatively open country where they were apparently seeking a cool climate and succulent vegetation (Joslin 1975).
202	1	7	. . . which the Forest Service has. . .
		13	. . . by ~~the Forest~~ them. ~~u~~Ungulate. . . boundaries.
		14-15	[Omit:] and because . . . information.
206	1	7	. . . in Figure II-13.
208	2	8	. . . near Camp Creek on the floodplain, . . .
		9	. . . along ~~in~~ lower Stanley Creek . . .
210	1	7	. . . wearing ~~a~~ color-coded plastic neck bands . . .
	2	10	. . . part of the 1975 Berray Mountain . . .
214	1	1	. . . can be added in ~~assessing~~ order to assess overall . . .
211	1	7	. . . by mountain goats and . . .
214	2	3	. . . hundred ~~and~~ twenty-six . . .
216	3	1&2	. . . 173 mountain goat~~s~~ observations were made ~~observed~~ while another 53 goat~~s~~ observations were made ~~observed~~ during . . .
217			Table II-44 [Footnote shoulbe be 1/ not a/]
203			Figure II-11 [On the Mount Vernon-Spar Peak ridge, an area outlined for mountain goat range was not filled in with cross-hatching]

220	2	10	. . . winter range do not ~~provide for the consideration~~ allow inclusion of the . . .
	3	4	. . . spring and summer and mild winters cannot . . .
	4	11	extirpation
328	2	4	of each species.
	4	1	Mule~~,~~ deer, moose, . . .
329	1	4	. . . lower mill site and three observations, 128 pellet groups and tracks indicate . . .
		5	. . . as well as indirect wildlife losses~~,~~ through facilities development.
	4	1	.....proposed route ~~a~~ two barred owls and . . .
	7	6&7	. . . Ruffed grouse use the Stanley Creek drainage for . . .
330	7	4&5	~~h.t.~~ habitat type
332	5	1	~~As a result of the data obtained d~~During. . .
334	6	6	. . . Bull Lake. ~~A~~ Two barred owls and . . .
335	1	13	. . . few areas ~~as~~ will be . . .
	2	4	. . . ridge between Mount Vernon and Spar Peak . . .
	1	2	. . . only ~~one~~ two occassions.
337	3	8	. . . respect to mountain lion use if the . . .
338	1	2	. . . areas for hunting ~~snowshoe hare~~ purposes.
	2	13-15	[Omit:] One observation of . . . use this area year round. [Insert:] One elk was observed on Mount Vernon and one was observed on Stanley Mountain during late summer suggesting that a small group may use this area year round.
	2	11	. . . summer range ~~that~~ the clearcut. . .
339	3	3	whitetails ~~white-tails~~ [This was consistently typed wrong.]

339	3	4	. . . mule deer ~~were~~ may have been using . . .
		11	Omission~~s~~ of . . .
	4	2	. . . more than ~~the~~ other . . .
		3	. . . activities it appears ~~as though~~ the . . .
		9	. . . Highway 202 in the area of the tailings pond may be . . .
			~~(d)~~ (iv) Moose
			~~(iv)~~ (v) Bighorn Sheep
			~~(v)~~ (vi) Mountain Goat
		8	. . . goat and it~~'~~s habitat.
	4	1	. . . and its habitat ~~is~~ are not. . .
		2	. . . documented ~~from~~ in Alaska . . .
342	3	1	. . . goat extirpation. . .
403	6	5	. . . have a negative synergistic effect upon wildlife ~~each other~~.
404	1	4&5	. . . considered an ~~partial~~ irretrievable commitment of part of the wildlife resource.
Appendix			[Ruffed grouse drum route table was omitted.]
329	3	1	~~Five~~ Six species of birds . . .
		2&3	. . . chickadee, ~~and~~ golden-crowned kinglet and sharp-shinned hawk.
342	3	6	. . . extir~~ri~~pation occurs, . . .
173	5	3	. . . ~~13~~ 12 Canadian provinces or territories
177	2	7	. . . less than three ~~mph~~ miles per hour

H

Draft EIS Social - Economic text errata.

p. 288 - 2nd line from end, section a: "2976" should read 1976

p. 344 - 2nd sentence, C 1 a: Should read "As indicated in that appencix....."

p. 359 - 2nd paragraph: Two sentences beginning "The third assumption which concerns are repeated.

p. 360 - Table III-9, title: "1977-1978" should read 1977-1996.

p. 363 - 1st line: "Table II-10" should read Table III-10.

p. 364 - 1st line: "Table III-11" should read Table III-12
Last line, 1st paragraph; and 1st sentence, 2nd paragraph: "Table III-11" should read Table III-12. "Tables III-9, III-10, and III-11" should read Tables III-10, III-11, and III-12. All subsequent tables to III-22, p. 386 should be numbered one digit higher.

p. 368 - footnote: "$298,000" should read $291.

p. 370 - Table III-13 (actually III-14) under Libby: "H.S. District 1" should read H.S. District 4

p. 373 - 4th line: "$6,886,315" should read $7,934,232.

p. 413 - Paragraph 6, line 3: "A population of 10000. . . ." should read A population of 1,000.

I

U.S. Forest Service 1978 results of resurvey for Archeologic and Historic sites on the proposed ASARCO Inc. Troy Project area.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

S.O.

REPLY TO: 2360 Special Interest Areas

September 13, 1978

SUBJECT: ASARCO Troy Project Survey

TO: Paul Leimbach

On September 5 and 6, 1978 the proposed area of disturbance caused by the ASARCO Troy Project was resurveyed for archeological and historical sites. This survey was basically a spot check/limited coverage survey with the greater part of time spent looking in the proposed tailings impoundment area adjacent to Lake Creek. No archeological or historical sites were found in any of the proposed project area.

Carl M. Davis

CARL M. DAVIS
Supervisory Archeologist

cc: Davis

3

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